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Evaluation of the Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration

Final Report

Prepared for

Suzanne G. Wensky, PhD
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop WB-06-05
Baltimore, MD 21244-1850

Prepared by

RTI International
3040 Cornwallis Road
Research Triangle Park, NC 27709

The Urban Institute
National Academy for State Health Policy

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by

RTI International

Donald Nichols, Project Director
Susan Haber, Deputy Project Director
Melissa Romaine, Deputy Project Director

Joshua M. Wiener
Musetta Leung
Kevin Smith
Nathan West
Asta Sorensen
Kathleen Farrell
Leila Kahwati
Jerry Cromwell
Pamela Spain
Noëlle Richa Siegfried
Amy Kandilov
Vincent Keyes
Will Parish
Chris Beadles
Ann Larsen
Carol Urato

Ellen Wilson
Lisa Lines
Stephanie Kissam
Rebecca Perry
Patrick Edwards
Shellery Ebron
Mark Graber
Yiyan (Echo) Liu
Benjamin Koethe
Jenna Brophy
Andrew Kueffer
Amy Mills
Denise Clayton
Lindsay Morris
Rebecca Lewis

Sarah Arnold
Sophia Kwon
Konny Kim
Heather Beil
Denise Clayton
Kent Parks
Rose Feinberg
Timothy O'Brien
Matt Urato
Alon Evron
Elise Hooper
Huiling Pan
Laxminarayana Ganapathi
Brendan DeCenso*
Martijn Van Hasselt*
Nancy McCall*

The Urban Institute

Stephen Zuckerman
Nicole Cafarella Lallemand

Rachel Burton
Rebecca Peters

Robert Berenson
Kelly Devers**

National Academy for State Health Policy

Kathy Witgert
Neva Kaye
Diane Justice

Barbara Wirth
Charles Townley

Rachel Yalowich
Mary Takach***

Federal Project Officer: Suzanne G. Wensky

RTI International
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**Formerly with the Urban Institute

***Formerly with the National Academy for State Health Policy

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LIST OF ACRONYMS

ABD	aged, blind, or disabled
ACA	Affordable Care Act
ACO	accountable care organization
ACSC	ambulatory care sensitive conditions
ADK Demonstration	Adirondack Medical Home Demonstration
ADL	activities of daily living
ADT	admission-discharge-transfer
AHEC	Area Health Education Centers
AHI	Adirondack Health Institute, Inc.
AHRQ	Agency for Healthcare Research and Quality
AMI	acute myocardial infarction
APC	advanced primary care
APCD	all-payers claims database
APCP	advanced primary care practice
ARC	Actuarial Research Corporation
BCBS	Blue Cross Blue Shield
BCBSM	Blue Cross Blue Shield of Michigan
BCBSNC	Blue Cross Blue Shield of North Carolina
BCBSRI	Blue Cross Blue Shield of Rhode Island
BCN	Blue Care Network
BETOS	Berenson-Eggers Type of Service
BHHO	behavioral health home organization
BMI	body mass index
BQPP	Blue Quality Physician Program
CAH	critical access hospital
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CCI	Chronic Care Initiative
CCM	chronic care management
CCNC	Community Care of North Carolina
CCS	Clinical Classification Software
CCT	community care team
CDC	Centers for Disease Control and Prevention
CDE	certified diabetes educator
CDPS	Chronic Illness and Disability Payment System
CEDARR	Comprehensive Evaluation, Diagnosis, Assessment, Referral, and Re-evaluation
CFC	chlorofluorocarbon

CG	comparison group
CHEAR	Child Health Evaluation and Research
CHF	congestive heart failure
CHT	community health team
CI	confidence interval
CM	care management
CMIS	Case Management Information System
CMMI	Center for Medicare and Medicaid Innovation
CMIS	Case Management Information System
CMS	Centers for Medicare & Medicaid Services
COC	Continuity of Care [Index]
COPD	chronic obstructive pulmonary disease
CPC	Comprehensive Primary Care Initiative
CRF	chronic renal failure
CSI	Chronic Care Sustainability Initiative
CSS	Council of Subspecialty Societies
CTC	Care Transformation Collaborative of Rhode Island
CVD	cerebrovascular disease
D-in-D	difference-in-differences
D-D-D	difference-in-difference-in-difference
DNC	does not converge
DOH	Department of Health
DPW	Department of Public Welfare
DSRIP	Delivery System Reform Incentive Payment [New York]
E&M	evaluation and management
EDB	Enrollment Data Base
EDR	Evaluation Design Report
EF	eligibility fraction
EHR	electronic health record
EQulP	Expansion and Quality Improvement Program
ER	emergency room
ERISA	Employee Retirement Income Security Act of 1974
ESRD	end-stage renal disease
FFS	fee-for-service
FPL	federal poverty level
FQHC	federally qualified health center
FTE	full-time equivalent
GOHCR	Governor's Office for Health Care Reform

HCC	Hierarchical Condition Category
HCDS	Health Care Delivery Systems
HCH	Health Care Homes
HCPCS	Healthcare Common Procedure Coding System
HDL	high-density lipoprotein
HEDIS	Healthcare Effectiveness Data and Information Set
HHA	home health agency
HIE	health information exchange
HIPAA	Health Insurance Privacy and Accountability Act
HIT	health information technology
HITECH	Health Information Technology for Economic and Clinical Health
HIXNY	Health Information Xchange New York
HRSA	Health Resources and Services Administration
HSA	health service area
ICD-9	International Classification of Diseases, Ninth Revision
IESD	Index Episode Start Date
IHP	Integrated Health Partnership
IMPACT	Infrastructure for Maintaining Primary Care Transformation
ICF	intermediate care facilities
IPA	Independent Practice Association
IPPS	inpatient prospective payment system
IPSD	Index Prescription Start Date
IRB	institutional review board
IT	information technology
IVD	ischemic vascular disease
LDL-C	low-density lipoprotein cholesterol
LPN	licensed practical nurse
LTCD	long-term care hospital
LVN	licensed vocational nurse
MAeHC	Massachusetts e-Health Collaborative
MA	medical assistant
MA	Medicare Advantage
MAPCP	Multi-Payer Advanced Primary Care Practice
MCO	managed care organization
MDC	Michigan Data Collaborative
MDCH	Michigan Department of Community Health
MDM	Master Data Management
MDS	Minimum Data Set

MHDO	Maine Health Data Organization
MHQP	Massachusetts Health Quality Partners
MiHIN	Michigan Health Information Network
MiPCT	Michigan Primary Care Transformation Project
MMA	Medicare Modernization Act
MMIS	Medicaid Management Information System
MOU	memorandum of understanding
MPCC	Michigan Primary Care Consortium
MPHI	Michigan Public Health Institute
MRDD	mental retardation and developmental disabilities
MRI	magnetic resonance imaging
MSA	metropolitan statistical area
MU	meaningful use
MV	missing values
MVP	Mohawk Valley Plan [Vermont]
NASHP	National Academy for State Health Policy
NC-CCN	North Carolina Community Care Networks
NCH	National Claims History
NCSHP	North Carolina State Health Plan
NCQA	National Committee for Quality Assurance
NE	northeast
NNEACC	Northern New England Accountable Care Collaborative
NP	nurse practitioner
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration Systems
NYS DOH	New York State Department of Health
OASIS	Outcome and Assessment Information Set
OB/GYN	obstetrics and gynecology
OHIC	Rhode Island Office of the Health Insurance Commissioner
OLS	ordinary least squares
OMB	Office of Management and Budget
ONC	Office of the National Coordinator for Health Information Technology
OPD	outpatient department
ORHCC	Office of Rural Health and Community Care [North Carolina]
P4P	pay-for-performance
PA	physician assistant
PAFP	Pennsylvania Academy of Family Physicians

PBPM	per beneficiary per month
PBPQ	per beneficiary per quarter
PCCM	primary care case management [Maine]
PCMH	patient-centered medical home
PCP	primary care provider
PE	patient engagement and self-management
PGIP	Physician Group Incentive Program
PGP	physician group practice
PHO	physician hospital organization
PMPM	per member per month
PMPY	per member per year
PO	physician organization
PPC [®] -PCMH [™]	Physician Practice Connection Patient-Centered Medical Home
PPS	performing provider system
PQI	Prevention Quality Indicator
PS	propensity score
PTSD	post-traumatic stress disorder
PVD	peripheral vascular disease
QCA	qualitative comparative analysis
QFE	quarterly fixed effects
QI	quality improvement
REC	Regional Extension Center
RHC	rural health clinic
RIQI	Rhode Island Quality Institute
RN	registered nurse
ROF	return on fees
RoI	return on investment
RVU	relative value units
SASH	Support and Services at Home
SD	standard deviation
SE	southeast
SED	serious emotional disturbance [Maine]
SIM	State Innovation Model
SMI	serious mental illness [Maine]
SMV	set membership value
SNF	skilled nursing facility
SPA	State Plan Amendments
SQRMS	Statewide Quality Reporting and Measurement System

SSI	Supplemental Security Income
SSNRI	selective norepinephrine reuptake inhibitor
SSRI	selective serotonin reuptake inhibitor
STDF	standardized difference
TANF	Temporary Assistance for Needy Families
TIN	taxpayer identification number
UB	uniform billing
UNC	University of North Carolina
UVM	University of Vermont
VCCI	Vermont Chronic Care Initiative
VCHIP	Vermont Child Health Improvement Program
VHCURES	Vermont Healthcare Claims Uniform Reporting and Evaluation System
VITL	Vermont Information Technology Leaders
VNA	Visiting Nurse Association
ZCTA	ZIP Code Tabulation Area

EXECUTIVE SUMMARY

The Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration was the first patient-centered medical home (PCMH) model of the Centers for Medicare & Medicaid Services (CMS). Under this demonstration, CMS joined state-sponsored, multi-payer initiatives to promote the principles characterizing PCMHs. After a competitive solicitation, eight states were selected for the MAPCP Demonstration: Maine, Michigan, Minnesota, New York, North Carolina, Pennsylvania, Rhode Island, and Vermont. Although the demonstration in all eight states was to start on July 1, 2011, only New York, Rhode Island, and Vermont became operational on that date. Minnesota and North Carolina became operational on October 1, 2011, and Maine, Michigan, and Pennsylvania on January 1, 2012. The demonstration ended in Minnesota, North Carolina, and Pennsylvania on December 31, 2014, but continued in the other five states through the end of 2016.

With those eight states, more than 6,000 providers at more than 800 practices participated, providing advanced primary care services to more than 3 million individuals, including more than 700,000 Medicare fee-for-service (FFS) beneficiaries. The MAPCP Demonstration infused nearly \$125 million in demonstration payments to support the provision of patient-centered comprehensive, coordinated primary care and enhanced access.

The goal of the evaluation was to assess the impacts of the MAPCP Demonstration and determine how contextual factors influenced these impacts. The evaluation is organized around six major domains: state initiative implementation, practice transformation, access to care and coordination of care, beneficiary experience with care, quality of care and patient safety, and effectiveness (utilization of health services and expenditures). In our evaluation, we also consider special populations. The evaluation used a mix of qualitative and quantitative methods to capture each state's unique features and to develop an in-depth understanding of the transformative processes occurring within and across the states' health care systems and participating PCMH practices, thereby allowing us to link structural and process changes directly to outcomes. The evaluation period began as each state started in the demonstration and went through December 2014 (which was the original planned end date of the demonstration). This Final Report summarizes the evaluation findings through December 2014.

The eight state initiatives differed along many features. **Table ES-1** highlights some of these features.

- The initiatives had varying levels of experience when Medicare joined. The prior tenure of these initiatives ranged between 1.5 years (New York and Michigan) and 8.5 years (North Carolina).
- Although average payments to practices were aimed at not exceeding \$10 per beneficiary per month (PBPM), the Medicare PBPM payments ranged between \$1.20 in Vermont and \$58.50 in Minnesota. However, most state initiatives did not have a flat rate. For example, whereas the lowest payment PBPM in Vermont was \$1.20 for practices with Level 1 National Committee for Quality Assurance (NCQA) recognition, practices with Level 3 recognition received \$2.39 PBPM. In addition to recognition level, states varied their PBPM payments amounts according to practice tenure in initiative (Rhode Island), performance/utilization targets (Rhode Island, Michigan, and Pennsylvania), and patient characteristics (Minnesota and Pennsylvania).

Table ES-1
State initiative features

Initiative feature	New York	Rhode Island	Vermont	North Carolina	Minnesota	Maine	Michigan	Pennsylvania
MAPCP Demonstration start date	7/1/2011	7/1/2011	7/1/2011	10/1/2011	10/1/2011	1/1/2012	1/1/2012	1/1/2012
State initiative joined by CMS (Initiative start date and age when MAPCP Demonstration started)	Adirondack Medical Home Demonstration (1/2010; 1 yr 6 mo)	Chronic Care Sustainability Initiative (10/2008; 2 yr 9 mo)	Blueprint for Health (7/2008; 3 yr)	Community Care of North Carolina (4/2003; 8 yr 6 mo)	Health Care Homes (7/2009; 2 yr 3 mo)	Maine PCMH Pilot (1/2010; 2 yr)	Michigan Primary Care Transformation Project (7/2010; 1 yr 6 mo)	Chronic Care Initiative (10/2009; 2 yr 3 mo)
Medicare PBPM payment to practice	\$7.00 ¹	\$3.00 to \$6.00	\$1.20 to \$2.39	\$2.50 to \$3.50	\$10.14 to \$58.50 ²	\$6.95	\$2.00 to \$6.50	\$2.10 to \$6.14
Payers mandated to participate	No	Commercial	State employee plans, commercial	No	Commercial not subject to ERISA	No	No	No
Number of payers	9	5	5	4	n/a ³	6	5	5
PCMH certification requirement	NCQA: Level 2 + state-specific mandatory criteria (within 12–18 months)	NCQA: Level 1 + state-specific “must-pass” NCQA elements (within 6 months)	NCQA: Level 1 + state-specific mandatory criteria	NCQA: Level 1 (by end of first year)	Minnesota HCH standards: Meet 100% of standards	NCQA: Level 1 + 10 core expectations	BCBS Michigan’s PGIP: PCMH designation or NCQA: Level 2	NCQA: Level 1 + state-specific must-pass NCQA elements
Support teams	Pods	Care management support for some practices from local hospital	CHTs	Networks	None	CCTs	POs	None
Mandatory 24-hour access to care	Yes	No	No	No	Yes	No	Yes	No

(continued)

Table ES-1 (continued)
State initiative features

Initiative Feature	New York	Rhode Island	Vermont	North Carolina	Minnesota	Maine	Michigan	Pennsylvania
Care coordination technical assistance	No	Yes	Yes	Partially	Partially	Yes	Yes	No
Care coordination focus on high-risk patients	Yes	Partially	Yes	Yes	Yes	Yes	Yes	Yes
Discharge data and alerts	Partially	Partially	Partially	Partially	Partially	Partially	Yes	No
Higher payments for higher certification levels	No	No	Yes	Yes	No	No	No	No
Performance incentives	P4P	P4P	No	No	No	No	P4P	Shared savings

NOTES:

- ¹ New York's Medicare PBPM amount includes the following required contributions: \$0.50 to a P4P incentive pool administered by the AHI, \$0.10 to AHI to administer this P4P incentive pool, and \$0.50 to AHI for vendor management, a data warehouse, and other centralized activities.
- ² Minnesota's maximum Medicare PMPM payment amount includes the 15 percent supplement for patients with mental illness and the 15 percent supplement for patients who speak English as a second language.
- ³ Minnesota did not report individual commercial insurance plan participation in its quarterly reports to CMS.

AHI = Adirondack Health Institute, Inc.; BCBS = Blue Cross Blue Shield; CCT = community care team; CHT = community health team; CMS = Centers for Medicare & Medicaid Services; ERISA = Employee Retirement Income Security Act of 1974; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; NCQA = National Committee for Quality Assurance; P4P = pay-for-performance; PBPM = per beneficiary per month; PCMH = patient-centered medical home; PGIP = Physician Group Incentive Program; PO = physician organization.

- All states required practices to achieve PCMH certification to participate in the initiatives. Minnesota was the only state that used its own Health Care Homes (HCH) standards to certify practices as PCMHs instead of the NCQA PCMH recognition requirements. Michigan practices could certify using the Physician Group Incentive Program (PGIP) PCMH designation requirements, in addition to the NCQA recognition standards. The standards of all states focused on practice transformation, quality improvement, and data reporting.
- Each state had between three and seven other payers participate in their multi-payer PCMH initiatives, in addition to Medicare and Medicaid. Payer participation was relatively steady for all states except Pennsylvania. Greater payer participation increased the likelihood that practices received enough support to transform.
- Half of the demonstration states incorporated a pay-for-performance (P4P) element into their payment model to incentivize practices to improve performance on quality measures.

Resources used by initiatives. The initiative designs included resources to help practices transform and deliver patient-centered care. Successful execution of these resources likely influenced the impact of the MAPCP Demonstration practices.

- *Care managers were viewed as the most central, transformative aspect of the PCMH model.* Care managers followed up with patients after hospital discharges or emergency room (ER) visits, taught patients self-management, performed medication reconciliation, connected patients to community-based services, and developed and implemented individualized care plans. Practices had positive assessments of the work and value of care managers. However, care managers' interaction with patients often was limited to a small percentage of a practice's patients. Some states (Pennsylvania, North Carolina, and Michigan) voiced concerns about lacking sufficient care managers/care coordinators to serve the targeted populations or to have a broad impact.
- *Most state initiatives (New York, Rhode Island, Vermont, North Carolina, Maine, and Michigan) used shared support teams* to some extent to augment the care coordination provided by practices and improve links among primary care practices and community organizations and support services. The practices felt that their shared support teams were critical, valuable, and helpful.
- *Every state initiative offered technical assistance to practices*, including learning collaboratives, in-person meetings, practice coaching, and distance learning, such as webinars or conference calls. Practice staff's views of technical assistance ranged from quite positive to more mixed assessments of its usefulness. Practices were most positive about technical assistance that involved practice-specific problem solving, onsite visits, and learning from other practices that had experienced problems. However, practices with unfavorable views of their technical assistance experience felt that the technical assistance did not address more advanced issues experienced by

practices with more tenure in the initiatives. They described the technical assistance as too elementary or redundant.

- *States and participating payers provided practices with data* in various formats to facilitate care management and continuous quality improvement efforts. MAPCP practices in Maine, New York, Pennsylvania, Rhode Island, and Vermont had access to the MAPCP Demonstration Web Portal, which allowed practices to receive quarterly practice-level feedback reports, beneficiary utilization files, and beneficiary assignment files. Web portal usage was relatively low and diminished over time. Practices found the reports and files of less interest because the data were outdated by the time they received the reports. In addition to practice feedback reports through the MAPCP Demonstration Web Portal, practices in each of the states also received data reports for their Medicaid and commercial population based on claims and clinical data. In general, practices did not find this data useful. The main criticisms were that data were outdated or of poor quality.

Demonstration payments. During the MAPCP Demonstration, CMS made PBPM payments to practices to support their provision of patient-centered care to Medicare beneficiaries. As shown in *Table ES-1*, each initiative designed its own payment structures, and the payment amounts varied across initiatives. In addition to practice demonstration payments, the initiatives in Maine, Vermont, Michigan, New York, and North Carolina provided payments to nonpractice supporting entities. These entities supported the PCMH model by providing care coordination services through shared support teams, program management, vendor management, and data warehousing.

- *Payments help transform.* Demonstration payments usually were used to offset the cost of new care managers' salaries, and sometimes to purchase or upgrade an electronic health record (EHR) system or hire new staff.
- *Practices were grateful for the demonstration payments but felt that payment amounts were too small.* The payments were viewed by practices as insufficient for covering the cost of all of the transformation enhancements made to their practice or for incentivizing providers to change their care style to be more patient-centered. Several practices cited insufficient financial support as a reason for withdrawing from the demonstration.

Practice transformation. During the MAPCP Demonstration, practices across states made significant changes to transform their practices and enhance the care they provided to their patients. Although making these changes took a lot of effort, practices tried earnestly to transform, and MAPCP Demonstration participants felt that their efforts improved patient care and patient experiences with care.

- *Staff changes were a common response to MAPCP Demonstration participation in all states.* During the first year, MAPCP Demonstration practices mostly focused on hiring (as a new role or an increase in full-time equivalent staff), training, and integrating care managers. Throughout the demonstration, practices across states also focused on hiring other staff that would help them accomplish patient-centered care.

Medical assistants were popular, helping care managers with activities such as enhanced patient education, preventive care monitoring, pre- and post-visit notes/planning, medication reconciliation, and arranging consultations. Practices also hired other professionals such as clinical pharmacists, registered dietitians, social workers, wellness nurses, behavioral health professionals, panel managers, and diabetes educators. To ensure efficiency in their work staff, practices also focused on having staff work at the top of their licenses.

- *During Year Three of the demonstration, there was a greater emphasis on panel management by care managers*, especially of high-risk and high-cost patients. States hoped that a more intensive focus and concentration of resources on high-risk and high-cost patients would result in a greater overall impact on utilization and expenditures.
- *Practices universally sought to expand patient access*. Efforts to improve access to care included open access scheduling, expanded hours, better after-hours coverage, improved telephone access, and Web-based patient portals:
 - Practices used a variety of approaches to support their efforts to provide same-day appointments, including developing algorithms to determine the optimal number of appointment times to leave open, making a proportion of its appointments available for same-day appointments, and implementing systems to track the third-next available appointment and to make sure same-day appointments were available.
 - The success of expanded hours and after-hours coverage often depended on patient knowledge of their availability and the availability of providers to staff these activities. To help with patient knowledge, practices employed a variety of strategies, including educational campaigns to inform patients of after-hours options, informational posters in waiting rooms, and information about expanded hours in telephone messages heard by patients while on hold. Many practices across the MAPCP Demonstration states found it challenging to fund extended hours and to find staff to work the hours. A few states and practices found creative ways to address these challenges (e.g., rotating after-hours duty, offering incentive payments to practices that provided at least 12 hours of evening and weekend hours access).
 - Year Two saw the start of significant adoption of patient portals, with the goal of increasing patients' interaction with their primary care providers (PCP). Functionality varied across and within states, but generally patient portals allowed patients to request medication refills, view medication lists, review laboratory test results, request an appointment, view visit summaries, and communicate with providers using secure messaging. Providers perceived the portals as time-saving and useful for interacting with patients. Beneficiaries who used the patient portals were enthusiastic about it, using it to make appointments, check test results, and communicate with their PCPs.

- Access to specialists was a particular issue in a few states (Vermont and North Carolina). To address the issue, some practices used telemedicine services or brought specialists into their practice areas for 1 or 2 days per week.
- *Shared decision making.* Shared decision making was a core feature of the MAPCP Demonstration. However, there was state-to-state variation in the extent to which practices emphasized this activity. The initiatives in Vermont and Minnesota prioritized shared decision making by offering MAPCP Demonstration providers training on how to more effectively include patients, family members, and caregivers in decisions concerning their health care; other states did not make much progress with implementing efforts that encouraged shared decision-making. Most beneficiaries thought that their relationship with their PCPs was a partnership and that their PCPs respected their opinions and preferences and involved them in making decisions about their treatment, but that it was an area that could be improved upon.
- *Self-management.* All MAPCP Demonstration states included self-management programs for chronic conditions as part of their initiatives. However, providers and patients differed in opinion on the extent to which self-management was promoted. In general, patients were impressed by the practices' self-management efforts, and most focus group participants said that their PCPs talked to them about things they could do to improve their health, such as diet, exercise, smoking cessation, and reminders about preventive care. On the other hand, practice survey results indicated that patient self-management support for chronic conditions was an area for improvement. It was not common for practices to provide patients with a written care plan.

Challenges. Although there was success in transforming practices into PCMHs, MAPCP Demonstration participants also encountered challenges:

- *The most common challenges faced by practices involved health information technology (health IT) and data sharing with other providers.* Health IT infrastructure was an integral component of most states' PCMH initiatives. Unfortunately, many states had problems operationalizing their health IT plans and spent significant time during the demonstration attempting to find solutions or new services to enable practices to access and share patient data more effectively. Difficulties accessing and sharing patient data affected practices' ability to be informed about patient care by other providers and to identify high-risk and high-cost patients. In addition to infrastructure, some practices also were frustrated by the inability to gain the involvement of hospitals and specialists in data sharing unless they and the practice belonged to the same health care system. These external providers were considered keys to successful coordination.
- *Getting reliable lists of high-risk and high-cost patients was also a serious challenge.* Practices' ability to focus on high-risk and high-cost patients often depended upon their obtaining a list identifying these patients. Several states (Rhode Island, North Carolina, Maine, and Michigan) faced issues such as variation in the algorithms used by payers to identify high-risk patients; algorithms that identified patients outside the scope of the demonstration's goals; and discrepancies between risk scores assigned

from historical claims data and those based on real-time assessments of patient risk according to clinical opinion and EHR data. There were also issues with data lags and data inaccuracies in some states. Some felt that these data issues led to a misallocation of care manager time in assessing patients who were misidentified as high-risk.

Lessons learned. The MAPCP Demonstration states shared some common lessons learned:

- *Transformation is possible.* Transformation to a PCMH is achievable for small, medium, and large practices in both rural and urban settings, as long as they are provided with sufficient resources, appropriate technical assistance, and aligned incentives and expectations across payers.
- *Participation of all payers and alignment of payments are critical.* Practice transformation, sustainability, and scalability depended on practices' receiving payment for a critical mass of their patients. Further, the lack of all-payer participation meant that practices spent time identifying eligible patients and having to deny care management to ineligible patients.
- *Sufficient time to see results is needed.* Implementing multi-payer PCMH initiatives is a complex process that requires significant time. In the first year, the focus was on changing program structure, and in the second and third year initiatives focused on improving program operations. At the end of Year Three, most practices felt that they were just getting started with the real work and that measurable impacts would come later.

The evaluation included an empirical analysis of the impact of the MAPCP Demonstration on quality of care, access to care, coordination of care, and health care expenditures and utilization of attributed Medicare and Medicaid beneficiaries. Below are our findings:

- *Medicare expenditures for the MAPCP Demonstration beneficiaries were \$227 million less than the PCMH comparison beneficiaries after accounting for the MAPCP Demonstration practice payments, but nearly \$171 million more than the non-PCMH comparison beneficiaries.*¹
 - More than half the savings relative to the PCMH comparison practices was due to lower expenditures on acute care. Expenditures for hospital outpatient care, on the other hand, increased significantly relative to both comparison groups (CGs).
 - Overall Medicare saving were largely driven by Michigan and Vermont, which had statistically significant savings estimates after deducting payments to MAPCP Demonstration practices. Pennsylvania, however, had significant savings before

¹ Minnesota did not have any PCMH CG practices, so the state is excluded from the estimate of Medicare savings relative to PCMH comparison beneficiaries. Minnesota is included in the estimate of the Medicare loss relative to non-PCMH comparison beneficiaries.

accounting for its MAPCP Demonstration practice payments, but not after deducting these payments. Among the remaining five states, Minnesota and Maine had statistically significantly *greater* expenditures than their comparison practices. However, the expenditures differences between MAPCP Demonstration practices and comparison practices in New York, Rhode Island, and North Carolina were not statistically significantly different from zero, suggesting that the Medicare portions of their initiatives were budget neutral.

- The considerable differences in the design of the PCMH initiatives and in implementation experience that were described earlier may have contributed to the disparate results across states. The unexpected finding that MAPCP Demonstration practices performed better against the PCMH CG than the non-PCMH group may be due to limitations in the data available to identify PCMH status. We used NCQA Physician Practice Connection Patient-Centered Medical Home (PPC®-PCMH™) recognition to assign PCMH status, but NCQA recognition is an imperfect indicator of the degree to which a practice has the characteristics of a PCMH because practices may choose not to go through the NCQA recognition process.
- *The following features were found to be common among the four states (Michigan, New York, Vermont, and Pennsylvania) that achieved net savings and not among the other four states:*
 - Required practices to be certified PCMHs at demonstration entry;
 - Incentivized consistent activities through its demonstration payments to practices;
 - Allowed practices to join the demonstration only at the start of the demonstration period, not later in the demonstration period;
 - Provided demonstration payments that were consistent with practice expectations; and
 - Included opportunities for practices to earn performance bonuses.
- Although there were some high points, there were no consistent impacts on Medicare beneficiaries by outcome category within or across states. Highlights of the Medicare results can be found in **Tables ES-2** through **ES-10**. These results are consistent with practices' viewpoint that the demonstration had not been implemented long enough to have had meaningful effects.
 - Evidence of reductions in utilization rates were minimal:
 - All-cause admissions for Medicare beneficiaries in New York, Michigan, and Pennsylvania were reduced relative to the CGs.

- No states had a decrease in Medicare ER visits not leading to hospitalization.
- We observed mixed findings for health outcomes among the states:
 - Only Pennsylvania yielded significant desirable findings. Demonstration practices in Pennsylvania had reduced rates of preventable hospital admissions.
 - We found increased, rather than decreased, rates of preventable hospitalizations among Medicare beneficiaries in two of the eight states (Vermont and North Carolina).
- There was little evidence of improvements in access to care and care coordination:
 - Only Rhode Island had an increase in primary care visits relative to the CGs. Although primary care visits were expected to increase under the demonstration, this might not be identified through a claims-based measure as a result of greater use of telephone, e-mail, and portals for patient contacts.
 - Medical specialist visits decreased in Vermont and North Carolina relative to the CGs, but there was no evidence that this was due to greater use of primary care services in these states.
 - Only Michigan had a significant reduction in 30-day unplanned readmissions. This may reflect widely reported challenges in managing care transitions from the hospital to the community due to poor communication between practices and hospitals, particularly in the first 2 years of the demonstration.
- There was limited and inconsistent evidence that the MAPCP Demonstration had an impact on Medicaid outcomes:
 - *No states had significantly slower rates of growth for total Medicaid expenditures for child or adult beneficiaries.* There were also no states with slower growth in acute-care services relative to CGs for either adults or children. New York was the only state where there was significantly slower expenditure growth in any of the service categories examined for Medicaid beneficiaries.
 - *We saw minimal evidence that state initiatives were associated with reductions in utilization rates for Medicaid beneficiaries:*
 - In Pennsylvania, there was a decrease in the rate of all-cause admissions for adult Medicaid beneficiaries. Child Medicaid beneficiaries had fewer admissions in Michigan.
 - There were decreases in ER visits for adult Medicaid beneficiaries in Pennsylvania and child Medicaid beneficiaries in North Carolina.

- *The demonstration also had mixed and unimpressive effects on quality of care among Medicaid beneficiaries in all but two states:*
 - In Minnesota, Medicaid beneficiaries in demonstration practices had increased the likelihood of receiving evidence-based recommended care in three out of four diabetes care metrics, as well as breast cancer screening and appropriate use of antidepressant and asthma medication.
 - In Michigan, Medicaid beneficiaries in demonstration practices had higher likelihoods of receiving three of the recommended diabetes care metrics.
- *Few states showed any improvements in access to care or care coordination:*
 - Primary care visits increased for adult and child Medicaid beneficiaries in New York and for adult beneficiaries in Minnesota.
 - Medical specialist visits decreased for adult Medicaid beneficiaries in New York, perhaps reflecting the increase in primary care visits. Although the increased rates of medical specialist visits for adults in Rhode Island and Minnesota and for children in Michigan was contrary to expectations, it is possible that demonstration practices facilitated access to these providers and reduced barriers to needed care.
 - There was no evidence that the demonstration reduced 30-day unplanned readmissions for Medicaid adults in any of the eight states.

Special populations. Although there were very few instances in which state initiatives contained a special or enhanced intervention for a subgroup of its patients, there were special populations with greater health needs who were thought to benefit more from care management. All states had at least a general policy interest in dually eligible beneficiaries, people with disabilities, beneficiaries with behavioral health issues, and beneficiaries with chronic conditions. Beneficiaries with chronic conditions were the only special population for which multiple states (Vermont, North Carolina, Maine, and Michigan) included a special focus in their initiatives. Vermont also included older people living in supported housing and beneficiaries with behavioral issues, and North Carolina included dually eligible beneficiaries and people with disabilities. The total expenditures of none of the studied special populations had a high rate of decrease across all states and payers. In fact, for at least half of the payer-state-CG combinations of each special population group, there was no evidence of a decrease in total expenditures. Beneficiaries with multiple chronic conditions were a focus in all states—even those where they were not identified as a population of special focus. Michigan was the only state where total expenditures decreased relative to the CGs for Medicare beneficiaries with multiple chronic conditions, and total expenditures increased in Minnesota and Maine. Among the four states for which Medicaid expenditure data were available, there were none where total expenditures decreased for Medicaid adult beneficiaries with multiple chronic conditions and expenditures increased for these beneficiaries in New York and Vermont.

In conclusion, although there were no consistent impacts by the MAPCP Demonstration on quality of care, access to care, utilization, or expenditures within or across states, the overall demonstration and six of the state initiatives were budget neutral. By the end of our evaluation period, MAPCP Demonstration practices felt that they had completed most of their transformation and refinement and that they were fully able to operate as PCMHs. Although the states and their partners and participants encountered challenges along the way, their experiences with the MAPCP Demonstration generated much knowledge and contributed many lessons learned about how to best implement state-sponsored, multi-payer PCMH initiatives and the PCMH model of care that will be useful to future primary care initiatives and those currently underway. Overall, practices felt that if they could maintain their patient-centered features in a collaborative all-payer environment and with the appropriate data and health IT infrastructure, they would experience favorable impacts on quality of care, access to care, utilization, and expenditures in the future.

Table ES-2
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Across all states

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	\$341,814,484*	-\$52,961,240
Net savings	Total	\$226,632,727	-\$170,572,817
Expenditures			
Total Medicare expenditures	Total	-\$341,814,484*	\$52,961,240
	PBPM	-\$26.88*	\$3.36
Acute-care expenditures	Total	-\$184,983,894*	-\$11,007,392
	PBPM	-\$14.55*	-\$0.70
Outpatient expenditures	Total	\$88,134,129*	\$157,381,120*
	PBPM	\$6.93*	\$9.99*
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	-\$166,893,887*	\$40,053,198
	PBPM	-\$58.90*	\$11.82
Utilization			
All-cause admissions	Total	-10,751*	2,807
	Rate	-2.54*	0.535
Admissions for potentially avoidable conditions	Total	-1,707	304
	Rate	-0.40	0.058
30-day unplanned readmissions	Total	-4,746*	-2,450*
	Rate	-20.36*	-8.77*
ER visits not leading to hospitalization	Total	14,918	25,919*
	Rate	3.52	4.94*
Primary care visits	Total	38,418	-3,882
	Rate	9.07	-0.74
Medical specialist visits	Total	-66,470	-115,167
	Rate	-15.68	-21.94

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Minnesota was excluded from the PCMH CG estimates because there were no PCMH CG practices in this state. Total estimates in the PCMH CG column are based on Medicare beneficiaries attributed to MAPCP Demonstration practices in seven states and are not directly comparable with total estimates in the non-PCMH CG column, which are based on attributed Medicare beneficiaries in all eight states.
- Total MAPCP Demonstration fees, excluding those paid in Minnesota, were \$115,181,757. Thus, for each dollar spent on MAPCP Demonstration fees, there was a savings of \$2.97 in Medicare expenditures compared with PCMH comparison practices.
- Total MAPCP Demonstration fees in all eight states were \$117,611,577. Thus, for each dollar spent on MAPCP Demonstration fees, there was a loss of \$0.45 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-3
Changes associated with the MAPCP Demonstration as of December 31, 2014:
New York

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	-\$3,892,202	\$8,118,395
Net savings	Total	-\$9,643,127	\$2,367,470
Expenditures			
Total Medicare expenditures	Total	\$3,892,202	-\$8,118,395
	PBPM	\$4.64	-\$9.67
Acute-care expenditures	Total	-\$15,887,067*	-\$5,323,679
	PBPM	-\$18.92*	-\$6.34
Outpatient expenditures	Total	\$19,615,332*	\$9,043,537
	PBPM	\$23.36*	\$10.77
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	\$212,442	-\$832,636
	PBPM	\$1.15	-\$4.50
Utilization			
All-cause admissions	Total	-1,705*	-1,038*
	Rate	-6.09*	-3.71*
Admissions for potentially avoidable conditions	Total	-202	-182
	Rate	-0.72	-0.65
30-day unplanned readmissions	Total	-217	-173
	Rate	-14.22	-11.34
ER visits not leading to hospitalization	Total	-1,047	773
	Rate	-3.74	2.76
Primary care visits	Total	-4,084	-1,167
	Rate	-14.59	-4.17
Medical specialist visits	Total	-5,791	-5,405
	Rate	-20.69	-19.31

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$5,750,926. Thus, for each dollar spent on MAPCP Demonstration fees in New York, there was a loss of \$0.68 in Medicare expenditures compared with PCMH comparison practices and a savings of \$1.41 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-4
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Rhode Island

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	-\$12,383,617	-\$9,354,522
Net savings	Total	-\$14,358,525	-\$11,329,430
Expenditures			
Total Medicare expenditures	Total	\$12,383,617	\$9,354,522
	PBPM	\$36.33	\$27.44
Acute-care expenditures	Total	-\$715,888	\$4,561,229
	PBPM	-\$2.10	\$13.38
Outpatient expenditures	Total	\$2,120,392	-\$1,024,385
	PBPM	\$6.22	-\$3.00
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	\$3,073,186	\$5,654,248
	PBPM	\$45.29	\$83.32
Utilization			
All-cause admissions	Total	-75	487
	Rate	-0.66	4.29
Admissions for potentially avoidable conditions	Total	-91	157
	Rate	-0.80	1.38
30-day unplanned readmissions	Total	-54	155*
	Rate	-9.33	26.67*
ER visits not leading to hospitalization	Total	-569	-467
	Rate	-5.01	-4.11
Primary care visits	Total	8,475*	3,382
	Rate	74.58*	29.76
Medical specialist visits	Total	2,267	-2,294
	Rate	19.95	-20.19

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$1,974,907. Thus, for each dollar spent on MAPCP Demonstration fees in Rhode Island, there was a loss of \$6.27 in Medicare expenditures compared with PCMH comparison practices and a loss of \$4.74 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-5
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Vermont

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	\$82,271,080*	\$61,754,919*
Net savings	Total	\$63,930,154*	\$43,413,993
Expenditures			
Total Medicare expenditures	Total	-\$82,271,080*	-\$61,754,919*
	PBPM	-\$36.06*	-\$27.07*
Acute-care expenditures	Total	-\$21,444,041	-\$13,870,188
	PBPM	-\$9.40	-\$6.08
Outpatient expenditures	Total	\$18,250,248*	\$5,543,513
	PBPM	\$8.00*	\$2.43
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	-\$16,984,150	\$1,165,904
	PBPM	-\$34.77	\$2.39
Utilization			
All-cause admissions	Total	-441	874
	Rate	-0.58	1.15
Admissions for potentially avoidable conditions	Total	692	1,179*
	Rate	0.91	1.55*
30-day unplanned readmissions	Total	-646	-26
	Rate	-20.10	-0.80
ER visits not leading to hospitalization	Total	11,140*	8,091*
	Rate	14.65*	10.64*
Primary care visits	Total	-5,794	-20,417
	Rate	-7.62	-26.85
Medical specialist visits	Total	-11,041	-44,280*
	Rate	-14.52	-58.23*

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$18,340,927. Thus, for each dollar spent on MAPCP Demonstration fees in Vermont, there was a savings of \$4.49 in Medicare expenditures compared with PCMH comparison practices and a savings of \$3.37 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-6
Changes associated with the MAPCP Demonstration as of December 31, 2014:
North Carolina

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	-\$7,674,949	-\$14,733,773
Net savings	Total	-\$14,199,765	-\$21,258,589
Expenditures			
Total Medicare expenditures	Total	\$7,674,949	\$14,733,773
	PBPM	\$10.49	\$20.13
Acute-care expenditures	Total	\$1,009,883	\$1,558,732
	PBPM	\$1.38	\$2.13
Outpatient expenditures	Total	\$2,502,753	\$5,115,275*
	PBPM	\$3.42	\$6.99*
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	\$2,374,950	\$6,362,451
	PBPM	\$12.06	\$32.32
Utilization			
All-cause admissions	Total	771	766*
	Rate	3.16	3.14*
Admissions for potentially avoidable conditions	Total	278	361*
	Rate	1.14	1.48*
30-day unplanned readmissions	Total	137	128
	Rate	8.60	8.06
ER visits not leading to hospitalization	Total	1,354	-293
	Rate	5.55	-1.20
Primary care visits	Total	-2,854	5,635
	Rate	-11.70	23.10
Medical specialist visits	Total	-4,069	-8,169*
	Rate	-16.68	-33.49*

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$6,524,816. Thus, for each dollar spent on MAPCP Demonstration fees in North Carolina, there was a loss of \$1.18 in Medicare expenditures compared with PCMH comparison practices and a loss of \$2.26 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-7
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Minnesota

Outcome		Vs. non-PCMH CG
Medicare savings		
Total gross savings	Total	-\$85,495,768*
Net savings	Total	-\$87,925,588*
Expenditures		
Total Medicare expenditures	Total	\$85,495,768*
	PBPM	\$34.05*
Acute-care expenditures	Total	\$31,326,017
	PBPM	\$12.48
Outpatient expenditures	Total	\$28,992,343
	PBPM	\$11.55
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	\$109,768,013*
	PBPM	\$197.75*
Utilization		
All-cause admissions	Total	823
	Rate	0.98
Admissions for potentially avoidable conditions	Total	230
	Rate	0.27
30-day unplanned readmissions	Total	-873
	Rate	-18.93
ER visits not leading to hospitalization	Total	5,521
	Rate	6.60
Primary care visits	Total	22,230
	Rate	26.56
Medical specialist visits	Total	315
	Rate	0.38

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$2,429,820. Thus, for each dollar spent on MAPCP Demonstration fees in Minnesota, there was a loss of \$35.19 in Medicare expenditures compared with non-PCMH comparison practice.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-8
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Maine

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	-\$52,558,003	-\$71,508,160
Net savings	Total	-\$64,871,584*	-\$83,821,741*
Expenditures			
Total Medicare expenditures	Total	\$52,558,003	\$71,508,160*
	PBPM	\$41.23	\$56.10*
Acute-care expenditures	Total	\$31,911,803*	\$32,892,352*
	PBPM	\$25.03*	\$25.80*
Outpatient expenditures	Total	\$21,539,810	\$10,410,147
	PBPM	\$16.90	\$8.17
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	\$45,161,987*	\$40,362,508*
	PBPM	\$145.85*	\$130.35*
Utilization			
All-cause admissions	Total	741	2,353*
	Rate	1.74	5.54*
Admissions for potentially avoidable conditions	Total	418	468
	Rate	0.98	1.10
30-day unplanned readmissions	Total	-970	97
	Rate	-45.68	4.55
ER visits not leading to hospitalization	Total	-4,064	-4,214
	Rate	-9.56	-9.92
Primary care visits	Total	7,099	25,224
	Rate	16.71	59.36
Medical specialist visits	Total	-13,290	-6,072
	Rate	-31.28	-14.29

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$12,313,581. Thus, for each dollar spent on MAPCP Demonstration fees in Maine, there was a loss of \$4.27 in Medicare expenditures compared with PCMH comparison practices and a loss of \$5.81 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-9
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Michigan

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	\$294,714,755*	\$140,492,980
Net savings	Total	\$229,776,392*	\$75,554,617
Expenditures			
Total Medicare expenditures	Total	-\$294,714,755*	-\$140,492,980
	PBPM	-\$43.37*	-\$20.68
Acute-care expenditures	Total	-\$155,207,974*	-\$84,616,822
	PBPM	-\$22.84*	-\$12.45
Outpatient expenditures	Total	\$35,770,387	\$72,204,820*
	PBPM	\$5.26	\$10.63*
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	-\$175,211,800*	-\$196,482,066*
	PBPM	-\$118.93*	-\$133.37*
Utilization			
All-cause admissions	Total	-10,395*	-3,126
	Rate	-4.59*	-1.38
Admissions for potentially avoidable conditions	Total	-1,163	-508
	Rate	-0.51	-0.22
30-day unplanned readmissions	Total	-3,016*	-1,241
	Rate	-23.49*	-9.67
ER visits not leading to hospitalization	Total	4,069	13,011*
	Rate	1.80	5.74*
Primary care visits	Total	20,270	-74,172
	Rate	8.95	-32.75
Medical specialist visits	Total	-27,638	-74,332
	Rate	-12.20	-32.82

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$64,938,363. Thus, for each dollar spent on MAPCP Demonstration fees in Michigan, there was a savings of \$4.54 in Medicare expenditures compared with PCMH comparison practices and a savings of \$2.16 in Medicare expenditures compared with non-PCMH comparison practices.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

Table ES-10
Changes associated with the MAPCP Demonstration as of December 31, 2014:
Pennsylvania

Outcome		Vs. PCMH CG	Vs. non-PCMH CG
Medicare savings			
Total gross savings	Total	\$36,633,819*	\$25,202,759
Net savings	Total	\$24,158,656^	\$12,727,596^
Expenditures			
Total Medicare expenditures	Total	-\$36,633,819*	-\$25,202,759
	PBPM	-\$37.68*	-\$25.92
Acute-care expenditures	Total	-\$21,772,671*	-\$10,967,258
	PBPM	-\$22.40*	-\$11.28
Outpatient expenditures	Total	-\$3,394,669	\$3,166,122
	PBPM	-\$3.49	\$3.26
Total Medicare expenditures for beneficiaries with multiple chronic conditions	Total	-\$14,321,192	-\$5,703,323
	PBPM	-\$63.96	-\$25.47
Utilization			
All-cause admissions	Total	-2,052*	355
	Rate	-6.33*	1.10
Admissions for potentially avoidable conditions	Total	-474*	-161
	Rate	-1.46*	-0.50
30-day unplanned readmissions	Total	-37	-16
	Rate	-1.98	-0.87
ER visits not leading to hospitalization	Total	-706	-1,464
	Rate	-2.18	-4.52
Primary care visits	Total	8,921	11,639
	Rate	27.53	35.92
Medical specialist visits	Total	-1,374	-7,022
	Rate	-4.24	-21.67

NOTES:

- Utilization rates (except readmissions) are per 1,000 beneficiary quarters. Readmission rates are per 1,000 beneficiary quarters with a live discharge.
- Total MAPCP Demonstration fees were \$5,338,237. Thus, for each dollar spent on MAPCP Demonstration fees in Pennsylvania, there was a savings of \$2.94 in Medicare expenditures compared with PCMH comparison practices and a savings of \$2.02 in Medicare expenditures compared with non-PCMH comparison practices.

^In Pennsylvania, net savings and return on fees include the shared savings payment of \$7,136,926 made by CMS in Year Three.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims from 2006 to 2014.

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CHAPTER 1

MULTI-PAYER ADVANCED PRIMARY CARE PRACTICE (MAPCP) DEMONSTRATION EVALUATION FINAL REPORT: INTRODUCTION, ORGANIZATION, AND DATA AND METHODS

1.1 Overview of the MAPCP Demonstration and Evaluation

1.1.1 Overview of the MAPCP Demonstration

For the MAPCP Demonstration, the Centers for Medicare & Medicaid Services (CMS) joined state-sponsored initiatives to promote the principles characterizing patient-centered medical home (PCMH) practices. After a competitive solicitation, eight states were selected for the MAPCP Demonstration: Maine, Michigan, Minnesota, New York, North Carolina, Pennsylvania, Rhode Island, and Vermont. Although the demonstration in all eight states was to start on July 1, 2011, only New York, Rhode Island, and Vermont became operational on that date. Minnesota and North Carolina became operational on October 1, 2011, and Maine, Michigan, and Pennsylvania became operational on January 1, 2012. The demonstration ended in Minnesota, North Carolina, and Pennsylvania on December 31, 2014, and continued in the other five states through the end of 2016.

The MAPCP Demonstration required each participating state PCMH initiative to be implemented by a state agency as part of a state-sponsored reform effort. Medicare joined state reform initiatives already in progress. Medicaid and major private health plans also participated in all eight state initiatives. Several state programs, such as Rhode Island's, also had substantial participation among self-insured groups. Many state programs exceeded the MAPCP Demonstration requirement for at least 50 percent private-payer participation.

In the request for applications, states were informed that the average Medicare per member per month (PMPM) payment should not exceed \$10 and that payment methods should be applied consistently by all participating payers—but not necessarily at the same dollar level—unless a compelling case for an alternative was made. Each state had its own payment levels and established its own payment methods. For example, Vermont paid practices differentially based on their National Committee for Quality Assurance (NCQA) PCMH recognition level. In contrast, Minnesota paid practices differentially based on the number of patient comorbidities.

State initiatives also were required to promote the principles of advanced primary care (APC), although each state had broad flexibility to adopt its own definition of APC for its practices. All MAPCP Demonstration states (except for Michigan and Minnesota) elected to define APC in alignment with the NCQA PCMH recognition standards. States also added expectations for practices reflecting local priorities. For this report, we use the term PCMH to refer to all practices participating in state MAPCP Demonstration initiatives, with the exception of Minnesota, where we use the term Health Care Homes (HCH), consistent with the state's naming convention.

Each state initiative was required to make provision for the integration of community-based resources to support PCMHs. Several states (Maine, New York, North Carolina, Michigan, Rhode Island, and Vermont) funded community health teams (CHTs), community-based practice

support networks, or physician organizations for this function. Further, each state initiative was required to provide for the ongoing measurement of quality and performance and for evaluation of the initiative's impact. Several states formed partnerships with state universities to conduct these evaluations. Finally, to provide the prospective assurance of budget neutrality for Medicare, states were required to identify and present persuasive evidence supporting their projections that CMS participation in the state initiative would result in savings to Medicare at least equal to the amount of CMS payments to participating practices. This provided CMS with measurable outcomes for evaluation purposes.

1.1.2 Overview of the MAPCP Demonstration Evaluation

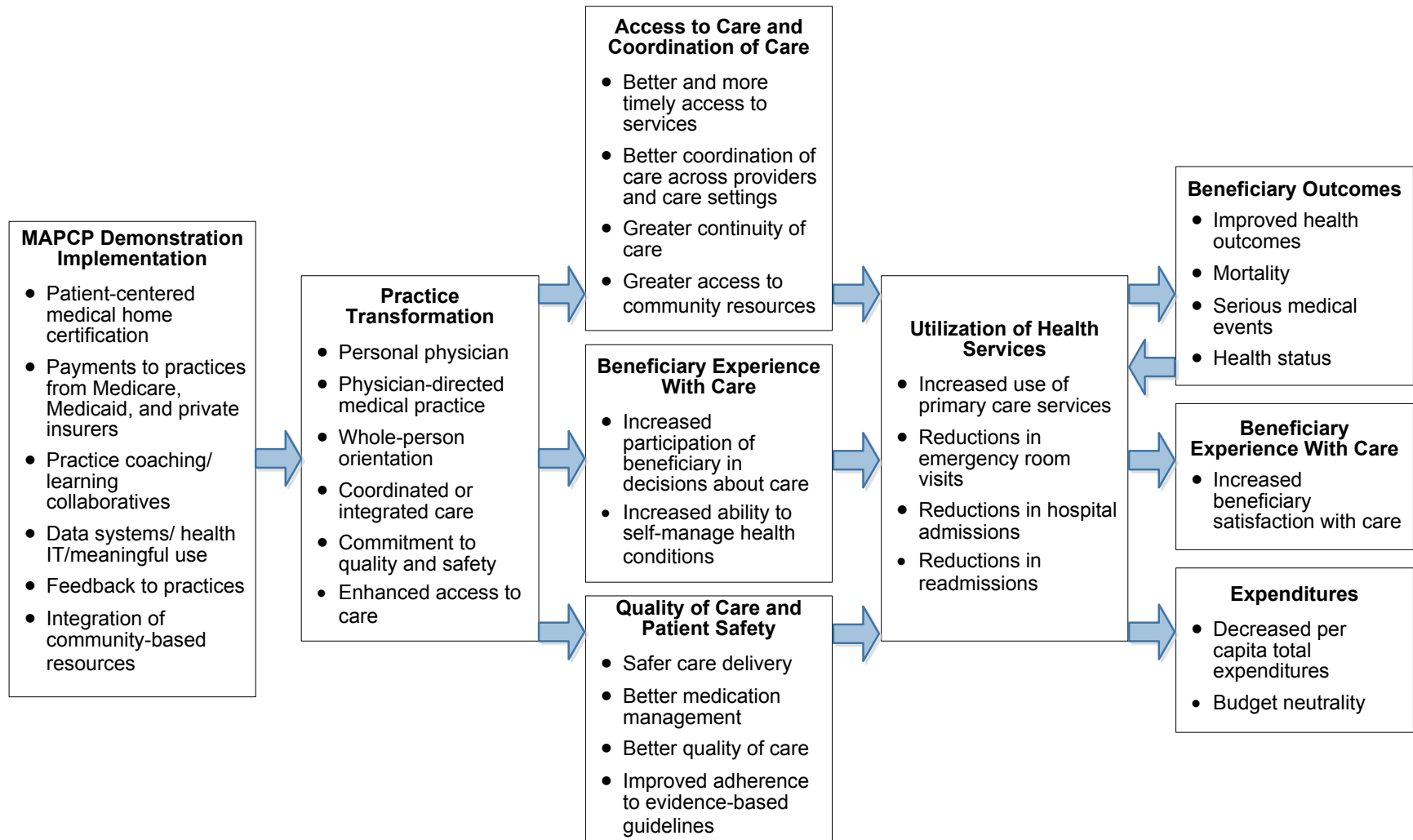
In 2011, CMS selected RTI International and its subcontractors, Urban Institute and the National Academy for State Health Policy, to evaluate the MAPCP Demonstration. The goal of the evaluation was to identify features of the state initiatives or the participating PCMH practices that were positively associated with improved outcomes. The evaluation used a mix of qualitative and quantitative methods to capture each state's unique features and to develop an in-depth understanding of the transformative processes that occurred within and across the states' health care systems and participating PCMH practices, thereby allowing us to link structural and process changes directly to outcomes.

Figure 1-1 shows the conceptual framework for the MAPCP Demonstration evaluation, organized into six major domains: State Initiative Implementation, Practice Transformation, Access to Care and Coordination of Care, Beneficiary Experience with Care, Quality of Care and Patient Safety, and Effectiveness (Utilization of Health Services and Expenditures). In our evaluation, we also considered special populations. Although each state initiative had unique aspects, the framework reflects common features of the initiatives and the broad areas of outcomes within our evaluation design. The framework considers other factors also influencing evaluation outcomes, such as individual beneficiary characteristics and the broader health care, social, political, economic, and physical environments in which the PCMH initiatives operated.

As shown in *Figure 1-1*, the state-sponsored initiatives undertook a range of strategies to promote the transformation of participating practices to PCMHs. In addition to payments from the major payers to participating practices, other strategies included practice coaching and learning collaboratives; developing data systems and health information technology (IT) infrastructure to provide decision support tools; facilitating information exchange among providers; achieving meaningful use objectives; providing feedback to practices on quality, utilization, and cost outcomes; and integrating community-based resources.

These strategies are intended to support the transformation of participating practices to embody the principles of the PCMH model (American Academy of Family Physicians et al., 2007). The PCMH model expands on the chronic care model developed by Wagner (1998), which identified six elements of a delivery system leading to improved care: the community, the health care system, self-management support, delivery system design, decision support, and clinical information systems (Glasgow, Orleans, & Wagner, 2001; Wagner, 2002; Wagner et al., 2001). Beneficiaries in these transformed practices were expected to have better access to care and better-coordinated care; to receive safer, higher-quality care; and to be more engaged in decision making about their care and the management of their health conditions.

Figure 1-1
Conceptual framework for the MAPCP Demonstration evaluation



IT = information technology; MAPCP = Multi-Payer Advanced Primary Care Practice.

As in the chronic care model, patients and providers in PCMHs interact more productively, leading to improved functional and clinical outcomes. As a result, patients are expected to have more efficient patterns of health service utilization, thereby promoting the triple aim of improving beneficiary experience with care, improving health outcomes, and reducing per capita total expenditures (Berwick, Nolan, & Whittington, 2008). Improved health outcomes could also reduce service utilization.

To test the success of the MAPCP Demonstration, individual-, practice-, and system-level primary and secondary data were collected and analyzed to answer research questions organized in three broad evaluation domains: State Initiative Implementation, Practice Transformation, and Outcomes. Outcomes include clinical quality of care and patient safety, access to and coordination of care, beneficiary experience with care, patterns of utilization, Medicare expenditures, and budget neutrality. The evaluation team worked collaboratively with CMS, other CMS evaluation contractors (e.g., RAND), and evaluators of non-CMS PCMH initiatives, such as the Multi-State PCMH Collaborative and the PCMH Evaluators Collaborative, to identify a core set of outcome measures and specifications for the evaluation. The evaluation team also identified additional outcome measures to evaluate across all eight states for both Medicare and Medicaid beneficiaries. Finally, the evaluation team reviewed the states' MAPCP Demonstration applications to determine the types of utilization and expenditure reductions each state expected and developed analytic variables for these services to permit direct examination of budget neutrality annually. *Appendix A* contains a table of the evaluation research questions by each evaluation domain and summarizes the methods, outcome measures, and data sources used to answer those questions.

The evaluation used a mixed-method design with both quantitative and qualitative methods and data. Mixed-methods research is well suited to the goals of this evaluation because different methods yield different insights. Quantitative methods are well suited to outcome evaluation and answering a variety of questions about whether and by how much costs were reduced and quality and safety improvements achieved for various types of beneficiaries and practices. The goal of the quantitative analyses was to estimate the effect of the MAPCP Demonstration on changes in patient utilization, costs, and other outcomes. In contrast, qualitative methods are well suited for process evaluation and providing data on the historical and current context of the state initiatives, their key features and how they evolve over time, barriers and facilitators to implementation, perceived benefits and costs for practices and patients, and lessons learned. Qualitative analyses for the evaluation were intended to complement the quantitative methods and provided context for explaining the quantitative findings.

The evaluation team conducted multiple rounds of primary and secondary data collection. Findings from the first year of the MAPCP Demonstration were reported to CMS in the First Annual Report (CMS, 2015), the Second Annual Report (CMS, 2016a) included findings from the second year, and the Third Annual Report (CMS, 2016b) included findings from the third year of the demonstration.

The Final Report includes results from our qualitative and quantitative cross-state analyses, as well as results from the Consumer Assessment of Health Providers and Systems (CAHPS) PCMH survey, the practice transformation surveys, and focus groups. The Final

Report contains summarized qualitative findings from the three rounds of site visits to all eight MAPCP Demonstration states. We also describe the demographic and health status characteristics of Medicare and Medicaid beneficiaries participating in the demonstration, as well as characteristics of participating demonstration practices.

Medicare and Medicaid quantitative outcomes analyses for each state were also conducted. To allow sufficient time for Medicare claims to be submitted and processed, we restrict our analyses to Medicare and Medicaid beneficiaries assigned to practices participating in New York, Rhode Island, and Vermont state initiatives from July 1, 2011, through December 31, 2014; in the North Carolina and Minnesota state initiatives from October 1, 2011, through December 31, 2014; and in the Maine, Michigan, and Pennsylvania initiatives from January 1, 2012, through December 31, 2014. Thus, the evaluation period of this report included 3 years and 2 quarters of the fourth year of the demonstration in New York, Rhode Island, and Vermont, and 3 years and 1 quarter of the fourth year in North Carolina and Minnesota. We evaluated 3 full years of the MAPCP Demonstration for Maine, Michigan, and Pennsylvania. Finally, a smaller set of three quantitative analyses related to budget neutrality, utilization, and expenditures was conducted across the eight states, allowing us to examine features of the state initiatives or the participating PCMH practices associated with positive outcomes.

1.1.3 Organization of the Final Report

The remainder of this chapter provides an overview of the MAPCP Demonstration evaluation design, as well as the qualitative and quantitative data and methods used in this report.

Chapter 2 provides cross-state analyses drawing on several different data sources and methods to explore the research questions further. *Section 2.1* presents our traditional comparative case study, which looks both within and across states to understand common initiative features and processes associated with particular outcomes. *Section 2.2* includes a pooled analysis of the MAPCP Demonstration practice transformation survey results to attempt to identify the degree to which the practices had adopted the PCMH model of care. In *Section 2.3*, we provide the results from our qualitative comparative analysis (QCA). We also provide the results from our quantitative cross-state analyses of utilization and expenditure measures (*Section 2.4*).

Chapter 3 provides a summary of qualitative and quantitative findings across the eight demonstration states and across the key evaluation domains of State Initiative Implementation, Practice Transformation, and Outcomes (clinical quality of care, patient safety and health outcomes, access to care and coordination of care, beneficiary experience with care, effectiveness [utilization, expenditures, and budget neutrality], and special populations). The chapter begins with a snapshot of key features of the eight initiatives (*Section 3.1*). *Section 3.2* summarizes key themes and implementation findings from the state site visits and concludes with lessons learned. *Section 3.3* summarizes key qualitative findings related to practice transformation activities during the MAPCP Demonstration, as well as a comparison of the state-specific results from the practice transformation surveys. *Section 3.4* provides a cross-state summary for five quantitative outcomes. *Section 3.5* summarizes the Medicare budget neutrality results for the evaluation period. *Section 3.6* provides a discussion of the cross-state findings.

Chapters 4 through 11 provide detailed qualitative and quantitative findings for each MAPCP Demonstration state. Each chapter has eight sections: state initiative implementation; practice transformation; clinical quality of care, patient safety, and health outcomes; access to care and coordination of care; beneficiary experience with care; effectiveness (utilization, expenditures, and budget neutrality); and special populations. Each chapter concludes with a discussion and synthesis of the evaluation findings.

Chapter 12 highlights overarching themes and similarities across the eight state initiatives. We summarize common implementation activities and discuss the outcomes. We also identify common challenges and barriers, as well as lessons learned.

1.2 Overview of Evaluation Design, Data, and Methods for the Quantitative Data

In this section, we provide an overview of our quantitative methods. We begin by describing the MAPCP Demonstration eligibility criteria to be met by Medicare fee-for-service (FFS) beneficiaries and Medicaid beneficiaries to participate in each initiative and describe the method of attribution of beneficiaries to participating PCMHs and comparison practices (**Sections 1.2.1 and 1.2.2**). Next, we provide a description of the data used in the quantitative analyses (**Section 1.2.3**), followed by an explanation of the expected impact on outcomes (**Section 1.2.4**) and an overview of the analytic methods used in our modeling of outcomes (**Section 1.2.5**). Our approach to balancing the MAPCP Demonstration and comparison group (CG) samples is described in **Section 1.2.6**, and then we describe our approach to estimating Medicare budget neutrality within the MAPCP Demonstration (**Section 1.2.7**). We conclude with an overview of our cross-state quantitative methods (**Section 1.2.8**).

1.2.1 Identification of Demonstration Beneficiaries

Medicare FFS Beneficiaries

Attribution to practices participating in each state's multi-payer PCMH initiative occurred quarterly, using attribution methods independently developed by each MAPCP Demonstration state and implemented by Actuarial Research Corporation (ARC) for all states except Minnesota. (See **Appendix B** for details on attribution for each state.) To be eligible for participation in the MAPCP Demonstration, Medicare beneficiaries had to meet the following eligibility criteria each quarter:

- be alive;
- have Medicare Parts A and B;
- be covered under traditional Medicare FFS;
- have Medicare as the primary payer for health care expenses;
- reside in the state-specified geographic area for its initiative; and
- be attributed to a MAPCP Demonstration participating practice.

All Medicare beneficiaries meeting these six criteria were eligible for evaluation. They also had to be attributed to a participating PCMH for at least 3 months over the course of the relevant demonstration evaluation period (i.e., 12 months, 24 months, 36 months). We removed beneficiaries with fewer than 3 months of eligibility during the demonstration period, assuming that practices and other entities (e.g., CHTs in some states) had limited opportunity to engage with patients and influence outcomes during the demonstration period. In removing beneficiaries with fewer than 3 months of eligibility, we minimized the potential bias to the null of our impact analysis findings.

Unlike participating practices in the other seven demonstration states, Minnesota practices were expected to self-attribute beneficiaries to practices and submit monthly claims for MAPCP Demonstration payments to Medicare on behalf of all eligible patients in a practice. However, most certified Minnesota health care homes otherwise eligible for demonstration payments did not submit monthly MAPCP Demonstration claims to Medicare. Because of the exceptionally low observed rate of practice billing in Minnesota's MAPCP Demonstration, we used an attribution developed by ARC for evaluating Minnesota.

Medicaid Beneficiaries

RTI used two approaches to identify Medicaid beneficiaries for the demonstration group: (1) attribution based on designated primary care provider (PCP), and (2) claims-based attribution. In general, we have chosen the approach most closely aligned with the procedure used in a MAPCP Demonstration state to attribute Medicaid beneficiaries to practices for the purpose of making Medicaid PCMH payments. Beneficiaries were attributed to practices quarterly. Because all of the MAPCP Demonstration states except Rhode Island included children in their PCMH initiatives, children were included in the Medicaid analysis, and pediatric primary care practices participating in each state's initiative were incorporated into the attribution process. We provide a general description of the attribution approach for each state below, and we provide a more detailed, state-specific description in *Appendix B*.

Maine, Michigan, North Carolina, Pennsylvania, and Rhode Island. Attribution in these states was based on a beneficiary's designated PCP or practice. In Michigan, Southeast Pennsylvania, and Rhode Island, all Medicaid beneficiaries eligible for their state's initiative are enrolled in Medicaid managed care or primary care case management. These enrollees must have a designated PCP whom they select (or to whom they are assigned if they do not make a selection). The demonstration group in these states included Medicaid managed care or primary care case management enrollees whose designated PCP is in a participating MAPCP Demonstration practice. Michigan, Southeast Pennsylvania, and North Carolina identified demonstration beneficiaries when they provided the Medicaid claims data to RTI. For Maine and Rhode Island, we attributed beneficiaries to providers and then providers to the appropriate MAPCP Demonstration participating practice.

Minnesota. Minnesota did not use a beneficiary attribution approach to make payments to practices participating in its initiative as described above. For the first 3 quarters of Minnesota's demonstration period, we attributed beneficiaries to practices on the basis of the plurality of evaluation and management (E&M) visits to providers with primary care specialties. Beginning with the fourth quarter of Minnesota's demonstration, we used a hybrid approach that first assigned beneficiaries on the basis of the plurality of care coordination claims; for those

beneficiaries without care coordination claims, assignment was based on a plurality of E&M visits to providers with primary care specialties belonging to a demonstration practice. Attribution of Medicaid beneficiaries to practices followed the same method used to attribute Medicare beneficiaries to practices.

New York and Vermont. New York's and Vermont's PCMH initiatives used different approaches for attributing their Medicaid FFS beneficiaries and their Medicaid managed care enrollees. Vermont attributed Medicaid beneficiaries not in managed care to PCMH practices on the basis of a plurality of claims for E&M visits over a 24-month look-back period. Vermont's Medicaid managed care enrollees were included in the PCMH initiative if their assigned PCP was serving in a primary care that was participating in the PCMH initiative. Medicaid FFS beneficiaries in New York were attributed to a practice using a two-step process. First, they were attributed to a primary care physician on the basis of the plurality of E&M visits during a 12-month look-back period, and then they were attributed to a PCMH practice if the primary care physician to whom they were attributed was practicing in a primary care practice in the PCMH initiative. Medicaid managed care enrollees in New York were included in the demonstration group if their designated PCP was practicing in a primary care practice participating in the PCMH initiative.

Rolling Entry into the MAPCP Demonstration and Intent-to-Treat Study Design

The MAPCP Demonstration allowed for rolling entrance of practices into and out of the demonstration. In addition, Medicare and Medicaid beneficiaries were allowed to enter the demonstration on a rolling basis, and they could lose eligibility during the demonstration if the practice to which they were attributed withdrew from the state initiative. Rolling entry meant that a beneficiary's specific start date to which they were introduced to the MAPCP Demonstration could be after the state began its participation in the MAPCP Demonstration. Medicare FFS beneficiaries also lost eligibility when they no longer met the criteria listed above. For evaluation purposes, however, once a Medicare or Medicaid beneficiary was eligible for the MAPCP Demonstration for at least 3 months, the beneficiary was always included in the evaluation sample. If beneficiaries lost Medicare or Medicaid eligibility at any time after they were attributed to a MAPCP Demonstration practice, their outcomes during those periods of lost eligibility were treated as missing because we did not have claims data for them during those times. Thus, we considered the MAPCP Demonstration an intent-to-treat study design.

For the quantitative analyses, claims data were included if the service was provided on a day when the beneficiary was eligible for participation in the demonstration. Claims during any periods of ineligibility were excluded. We constructed an eligibility fraction variable reflecting the length of time the beneficiary was eligible each quarter and used it as an analytic weight in all claims-based analyses. The eligibility fraction was defined for each quarter as the total number of eligible days during the quarter, divided by the total number of days alive in the quarter.¹

¹ For Medicare analyses, we restricted the denominator to days alive, which effectively prevented inflating outcomes during the quarter in which a beneficiary died. For Medicaid analyses, death dates were not available in the Medicaid data (except for North Carolina), and so we could not modify the eligibility fraction to account for days alive. For Medicaid analyses of North Carolina, which had beneficiary death dates, we followed the methodology used for Medicare.

1.2.2 Identification of Comparison Beneficiaries

The MAPCP Demonstration expanded on the PCMH model by providing additional Medicare care management fees and other supports to improve access to care, coordination of care, and the quality of care that patients received. To be able to evaluate both the effect that Medicare's MAPCP Demonstration participation had on participating practices and the effect of being a PCMH, we designed an evaluation to quantify two main changes:

- The change in outcomes associated with activities undertaken by MAPCP Demonstration practices after CMS joined the state initiative—These new activities were supported by CMS (e.g., payment of MAPCP Demonstration fees, provision of practice feedback reports on utilization and expenditures, and beneficiary-specific utilization reports), the state and its partners, and the participating practices. To estimate this change, we compared MAPCP Demonstration practices to primary care PCMHs not participating in the MAPCP Demonstration because they were not exposed to the MAPCP Demonstration-related activities.
- The change in outcomes associated with becoming a recognized PCMH and gaining exposure to activities and interventions related to transforming into a PCMH, in addition to the changes directly associated with participation in the MAPCP Demonstration—To estimate this change, we compared MAPCP Demonstration practices to primary care practices that were not NCQA-recognized PCMHs. These practices were not exposed to MAPCP Demonstration activities, and they may not have been exposed to PCMH transformation more generally. However, it is possible that these practices were undergoing some level of PCMH transformation outside of the process for NCQA PCMH recognition.

To assess each of these changes, for each state except Minnesota we identified two distinct CGs:

- *PCMH CG.* These were Medicare FFS and Medicaid beneficiaries who met MAPCP Demonstration eligibility and attribution criteria and were attributed to practices that had similar PCMH recognition as MAPCP Demonstration practices but were not participating in the state's multi-payer initiative. We used NCQA PCMH recognition standards to determine which primary care practices not participating in the MAPCP Demonstration were also PCMHs. Because the vast majority of Minnesota's primary care practices undergoing PCMH transformation activities were applying Minnesota's health home certification criteria, there were relatively few non-MAPCP Demonstration PCMHs relying solely on NCQA PCMH recognition criteria. Therefore, we could not produce a PCMH CG within Minnesota. We did consider creating a PCMH CG composed of PCMHs from outside Minnesota, but there were concerns about the bias introduced in an analysis from comparing Minnesota's MAPCP Demonstration health homes practices with practices using NCQA PCMH recognition.

- *Non-PCMH CG.* These were Medicare FFS and Medicaid beneficiaries who met MAPCP Demonstration eligibility and attribution criteria but were attributed to practices without PCMH recognition.

We used a three-step approach to identify comparison beneficiaries for all eight MAPCP Demonstration states:

1. Identification of a geographic area within each state from which we could identify comparison primary care practices;
2. Identification of primary care practices within these geographic areas that were not participating in the state's PCMH initiative; and
3. Identification of beneficiaries that met the MAPCP Demonstration eligibility criteria and could be attributed to a CG primary care practice identified in Step 2.

The process began by identifying the counties in which each state implemented its PCMH demonstration. If the demonstration practices were scattered throughout the state (as was the case in Maine, Michigan, Minnesota, Pennsylvania, and Rhode Island), comparison practices were drawn from the MAPCP Demonstration counties. If the demonstration practices dominated in their respective geographic areas (as was the case in New York's Adirondack region and North Carolina's rural counties), then the comparison practices were drawn from counties with similar characteristics elsewhere within the same state but outside the geographic area of the state PCMH initiative. In Vermont, so many primary care practices were participating in the Vermont PCMH demonstration that there were virtually no primary care practices left in the state from which to create a CG. Therefore, comparisons for Vermont were drawn from New Hampshire for the Medicare analysis and New York for the Medicaid analysis. In both circumstances, characteristics of the geographic area and of the target populations were not too dissimilar from those of Vermont. Further, a key consideration for the Medicaid analysis was the availability of Medicaid claims data, and because New York was a participating MAPCP state that had provided Medicaid claims data for this evaluation, we leveraged the data available.

After the comparison counties were determined, a list of primary care and multispecialty medical practices in those counties was generated from Medicare claims data. For the Medicaid analysis, this list of CG primary care practices was supplemented with a list of pediatric primary care practices identified through physician data from SK&A.

After selecting the comparison practices, in some cases we determined that the mix of CG practices was still not similar enough to the demonstration practices within the state. In particular, we found that we needed to supplement the CG with more federally qualified health centers (FQHCs), rural health clinics (RHCs), critical access hospitals (CAHs) if a state initiative included FQHCs, RHCs, or CAHs as primary care practices.² In a few instances, we also determined that we needed to supplement with additional NCQA-recognized CG PCMHs. Therefore, we either looked out of the state to supplement a state's CG sample or looked within

² To identify FQHCs, RHCs, and CAHs to supplement the CG, we used organizational National Provider Identification numbers in claims data and organizations listed in the National Plan and Provider Enumeration System.

the state but outside of our target CG counties. When we looked out of state, we looked only among the other participating MAPCP Demonstration states. **Table 1-1** presents the original comparison counties for the MAPCP Demonstration states and notes where we expanded the comparison area to obtain additional FQHCs, RHCs, and CAHs from counties in and out of the MAPCP Demonstration state. States were chosen to supplement other states' CGs based solely on their possession of the necessary provider type. For example, when we needed to supplement non-PCMH FQHCs in New York, we pulled from Michigan because Michigan was participating in the MAPCP Demonstration and had non-PCMH FQHCs. When we needed to go out of state to obtain additional FQHCs, RHCs, or CAHs to supplement the Medicare CG, we were unable to acquire the Medicaid claims for these out-of-state practices. In some cases, this resulted in poor balance across the MAPCP Demonstration group and one or more of the Medicaid CGs with respect to practice type, even after reweighting comparison observations to achieve more similarity across the demonstration and CGs. Although poor balance is a limitation, our evaluation approach does not rely solely on having perfect balance across the MAPCP Demonstration and CGs because we also use regression modeling to adjust impact estimates for differences in the MAPCP Demonstration and CGs.

Table 1-1
Demonstration and comparison areas by MAPCP Demonstration state

State	Demonstration area	Original comparison areas	Expansion areas
Maine	11 counties in the southern part of state	For Medicare and Medicaid: Same as demonstration counties	None needed
Michigan	40 counties	For Medicare and Medicaid: Same as demonstration counties	None needed
Minnesota	24 counties	For Medicare and Medicaid: Same as demonstration counties	None needed
New York	7 counties in Adirondack region	For Medicare and Medicaid: 16 counties in upstate New York	For Medicare: Any FQHCs or CAHs in non-demonstration counties in New York, plus 19 non-PCMH FQHCs from counties in Michigan For Medicaid: Any FQHCs or CAHs in non-demonstration counties in New York
North Carolina	7 mostly rural counties scattered across the state	For Medicare and Medicaid: 16 counties in the remainder of the state	For Medicare: Any RHCs or CAHs in non-demonstration counties in North Carolina, plus 6 PCMH CAHs from Maine For Medicaid: Any RHCs or CAHs in non-demonstration counties in North Carolina with attributed Medicaid enrollees
Pennsylvania	4 counties in northeast region, 5 counties in southeast region	For Medicare and Medicaid: Same as demonstration counties	None needed

(continued)

Table 1-1 (continued)
Demonstration and comparison areas by MAPCP Demonstration state

State	Demonstration area	Original comparison areas	Expansion areas
Rhode Island	3 westernmost counties in state	For Medicare and Medicaid: Same as demonstration counties	None needed
Vermont	All 14 counties in state	For Medicare: 10 counties in New Hampshire For Medicaid: same as New York's CG	For Medicare: Any FQHCs in Massachusetts, plus 5 PCMH FQHCs from Maine/Michigan, plus 6 PCMH RHCs from Maine/Michigan, plus 6 PCMH CAHs from Maine/Michigan For Medicaid: None needed

CAH = critical access hospital; CG = comparison group; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; RHC = rural health clinic.

For Medicare, practices with fewer than 30 attributed Medicare FFS beneficiaries per year were deleted from the pool of CG practices, but those practices were included in the CGs of the Medicaid analysis. Practices with few Medicare FFS beneficiaries had attributed Medicaid beneficiaries, so these practices were not excluded from the Medicaid analyses. Further, practices involved in other CMS PCMH initiatives or practice-based demonstrations were deleted from the list of comparison practices. These initiatives include the FQHC Advanced Primary Care Practice Demonstration, Medicare Health Care Quality Demonstration, Independence at Home Demonstration, Health Quality Partners, Physician Group Practice Transitional Demonstration, and Comprehensive Primary Care Initiative. These initiatives were identified through the CMS Master Data Management (MDM) provider extract file; organizations participating in the FQHC Advanced Primary Care Practice Demonstration were identified by RAND.

After selection of the practices was finalized, we used PCMH recognition data obtained from NCQA to identify which practices had received NCQA PCMH recognition and which had not. This information was updated annually, each time we conducted a “true up,” as described below.

The same protocol used to attribute individual Medicare and Medicaid beneficiaries to a specific MAPCP Demonstration practice (discussed in **Section 1.2.1** and in detail in **Appendix B**) was used to assign comparison beneficiaries to each comparison practice, with one exception: In Medicare, CG beneficiaries were attributed to a CG practice annually rather than each quarter, as in the process used for beneficiary assignment to the demonstration groups. In Medicaid, CG beneficiaries were attributed to CG practices quarterly, just as was done for the Medicaid demonstration beneficiaries. Further, for the Medicaid analysis, Michigan and Southeast Pennsylvania identified CG beneficiaries when they provided the Medicaid claims data to RTI; these states used lists of CG practices identified by RTI to facilitate identification.

Once a beneficiary was attributed to a MAPCP Demonstration participating practice, the beneficiary was no longer eligible to be attributed to a CG practice. Given the size of the MAPCP Demonstration CGs, the numbers of beneficiaries switching status were very small; removing them thus had negligible impact on CGs’ outcomes over time.

The set of MAPCP Demonstration participants constantly changed during the course of the study because of the entrance of new practices, the withdrawal of others, and attrition resulting from death or other loss of participation eligibility. To emulate this situation among the CGs, we checked eligibility for the demonstration quarterly and removed from the CG any beneficiaries no longer meeting the demonstration eligibility criteria. Further, we also checked quarterly to determine whether any CG practices had become participants in any other demonstrations or initiatives mentioned above; if so, we removed them and their attributed beneficiaries from the CG, effective in the quarter in which the practice began participating in the other initiative. Finally, we conducted an annual “true-up” of the CGs in Medicare by reapplying the beneficiary assignment algorithm at the end of each year. This process added new beneficiaries, removed those no longer receiving the plurality of their services from a CG practice, and moved beneficiaries and practices from the non-PCMH CG to the PCMH CG if their assigned practice received NCQA recognition as a PCMH during the prior year. Because most CGs already contained nearly all existing primary care practices in the area, the true-up process generally produced few changes in the composition of comparison practices.

There is one important limitation to the use of the two CGs. Over the course of the MAPCP Demonstration, the number of initiatives undertaken by commercial payers, individual primary care practices, and health care systems to promote patient-centered primary care increased significantly. In particular, some non-PCMH comparison practices may have been part of health care systems that had their own initiatives supporting patient-centered or cost containment activities without NCQA PCMH recognition. These practices may have also been participating in other commercial payer initiatives supporting transformation activities without NCQA PCMH recognition. By December 2014, the end of the MAPCP Demonstration evaluation period, the differences between PCMH and non-PCMH practices in terms of their PCMH activities may not have been as distinct as anticipated at the start of the MAPCP Demonstration, and it was not feasible to determine the extent of PCMH transformation in our non-PCMH, non NCQA certified CG. Because of this known shift in activities over time, quantitative results between the MAPCP Demonstration practices and the non-PCMH group may not be as large as would have otherwise been anticipated, and the ordinal differences in the results relative to PCMH and non-PCMH practices may not be as expected; the non-PCMH group may have looked more like the MAPCP Demonstration practices in terms of PCMH transformation by the end of the evaluation period.

1.2.3 Quantitative Data, Time Periods, and Variables Used in the Assessment of Outcomes

Our quantitative analyses relied on Medicare and Medicaid administrative and claims data. Below, we list the data sources used; additional detail on the data sets can be found in *Appendix C*.

Medicare Data

Medicare Enrollment Data Base (EDB). This file was used to identify days of eligibility for the MAPCP Demonstration and provide an estimate of the fraction of the demonstration period for which beneficiaries are eligible. This file also provided beneficiary demographic and Medicare eligibility information for the analyses.

Historical denominator file. This file was used to provide information needed to assign beneficiaries to low-, medium-, and high-risk categories based on the Hierarchical Condition Category (HCC) risk score.

Medicare TAP files. The TAP files contained inpatient, hospital outpatient, physician, skilled nursing facility (SNF), home health agency (HHA), hospice, and durable medical equipment claims for demonstration and comparison beneficiaries from January 2011 onward. These files were used to create our outcome measures of interest.

Medicare National Claims History (NCH) files. This file was used to obtain claims for hospital inpatient services, outpatient services, physician, durable medical equipment, home health, and hospice services before 2011.

Lists of practices and beneficiaries in other CMS demonstrations that were excluded from CG practices and beneficiaries. Practices and beneficiaries identified in these lists, generated from the MDM file, were excluded from the CG, as described in more detail in *Section 1.2.2*.

Medicaid Data

We received Medicaid enrollment, FFS claims, and managed care encounter files from all MAPCP Demonstration states. In some cases, we received additional files related to attribution, PCP assignment, and provider information. Additional detail on the data sets can be found in *Appendix C*.

Enrollment and eligibility files. These files included information used to identify periods of Medicaid enrollment and other items, such as why an individual was enrolled in Medicaid (e.g., low income, disability), date of birth, sex, and race/ethnicity.

FFS claims files. These files detail the services rendered to a Medicaid FFS beneficiary, including the type of service rendered, the dates on which services were rendered, the service provider, and the amount paid to the provider.

Managed care encounter files. Managed care encounter data include similar types of information available in FFS claims, except that some states (e.g., Michigan, Pennsylvania, Minnesota) do not record the amount paid to the provider.

Attribution files. Vermont, Michigan, Pennsylvania, and North Carolina provided files to identify the MAPCP Demonstration or CG providers or practices with whom a beneficiary was associated.

PCP assignment files. New York, Rhode Island, and Maine provided files linking Medicaid beneficiaries to an assigned PCP. These files were used in attributing beneficiaries to demonstration or CG practices.

Provider files. These contained data on individual providers or practices. These files were used in attributing beneficiaries to demonstration or CG practices.

Analytic Time Period and Variables

In this report, we analyzed changes during 12–14 quarters of the MAPCP Demonstration period in the quarterly rate of growth for selected utilization, expenditure, quality of care, access, and coordination of care measures. **Table 1-2** describes the time periods for analysis for the eight participating states.

Table 1-2
Analysis periods used in the evaluation of the MAPCP Demonstration

Demonstration period start date	Year One end date	Year Two end date	Year Three end date	Months of demonstration data	Pre-demonstration period start date	Pre-demonstration period end date
New York, Rhode Island, Vermont 7/1/2011	6/30/2012	6/30/2013	12/31/2014	38	1/1/2006	6/30/2011
North Carolina 10/1/2011	9/30/2012	9/30/2013	9/30/2014	38	1/1/2006	9/30/2011
Maine, Minnesota, ¹ Michigan, Pennsylvania 1/1/2012	12/31/2012	12/31/2013	12/31/2014	36–38	1/1/2006	12/31/2011

¹ Minnesota started the MAPCP Demonstration on 10/1/2011, but due to data unavailability, attribution was possible only from 1/1/2012 onward. For this reason, Minnesota was considered a member of Cohort 3 for analysis purposes. Because the MAPCP Demonstration's impact was not expected to happen immediately, we did not expect this change to significantly impact the quantitative results.

MAPCP = Multi-Payer Advanced Primary Care Practice.

In **Table 1-3**, we summarize the analytic variables used in the regression modeling, and we indicate which variables were used in Medicare analysis, the Medicaid analysis, or both. If a sociodemographic characteristic was used only in Medicare and not in Medicaid or vice versa, it was because the characteristic did not appropriately fit the data. For example, having end-stage renal disease (ESRD) is a unique feature of enrollment for Medicare, not Medicaid, and the HCC risk score was developed for the Medicare population whereas the Chronic Illness and Disability Payment System risk score was developed for Medicaid. For the outcomes, some measures could not be easily calculated for Medicare or for Medicaid; in these cases, only the population for which the measure applied is noted in the table. For example, limitations in the Medicaid data prohibited our ability to calculate the Continuity of Care (COC) Index, and several of the quality measures were applicable only to age ranges in the Medicaid population (e.g., breast cancer screening, cervical cancer screening). Further, we did not have access to Medicare prescription drug data, and Medicare is not a primary payer of long-term care services. Therefore, outcomes related to prescription drugs or long-term care were examined only in the Medicaid analysis. Detailed descriptions of how each variable in **Table 1-3** was created can be found in **Appendix D**.

Table 1-3
Sociodemographic characteristics, practice- and area-level characteristics, and outcomes
for the Medicare and Medicaid analyses

Variable	Medicare	Medicaid
Sociodemographic Characteristics		
Age	X	X
Race	X	X
Urban place of residence	X	X
Gender	X	X
Dually enrolled in Medicare and Medicaid	X	X
Enrolled due to disability	X	X
Enrolled due to ESRD	X	
Institutionalized	X	X
HCC risk score	X	
Charlson Comorbidity Index score	X	
Comorbid conditions	X	X
CDPS score		X
Presence of perinatal conditions		X
Continuously enrolled in Medicaid		X
Enrolled in Medicaid FFS or managed care		X
Practice- and Area-Level Characteristics		
Practice type	X	X
Percentage of providers in the practice who were PCPs	X	X
Size of the assigned practice	X	X
Household income	X	X
Population density	X	X
MAPCP Demonstration Payments and Expenditures		
Medicare MAPCP Demonstration fee payments	X	
Total expenditures	X	X
Total expenditures for services with a primary diagnosis of a behavioral health condition	X	X
Total expenditures for services with a secondary diagnosis of a behavioral health condition	X	
ER visits and observation stays	X	X
Post-acute care	X	
Laboratory	X	
Imaging	X	
Home health	X	
Other	X	
Services provided by primary care and specialty physicians	X	X
Long-term care expenditures		X
Prescription expenditures		X

(continued)

Table 1-3 (continued)
Sociodemographic characteristics, practice- and area-level characteristics, and outcomes
for the Medicare and Medicaid analyses

Variable	Medicare	Medicaid
Utilization		
All-cause hospitalizations	X	X
Behavioral health inpatient hospitalizations	X	X
ER visits	X	X
Behavioral health ER visits	X	X
Behavioral health outpatient visits	X	X
30-day unplanned readmissions	X	X
Inpatient admissions for asthma		X
Quality of Care		
Hospitalizations for potentially avoidable chronic conditions	X	
Hospitalizations for potentially avoidable acute conditions	X	
Hospitalizations for potentially avoidable conditions	X	
Diabetes quality of care	X	X
Comprehensive (IVD) care	X	
Rate of admission for a serious medical or avoidable catastrophic event	X	
Breast cancer screening		X
Cervical cancer screening		X
Appropriate use of asthma medications		X
Percent of births that are low birth weight		X
Appropriate use of antidepressant medication during an acute and a continuous treatment phase		X
Access to Care & Care Coordination		
COC Index	X	
Primary care visits	X	X
Specialist care visits	X	X
Surgical specialty visits	X	X
Primary care visits as a percentage of total visits	X	X
Follow-up visits within 14 days after discharge from the hospital	X	

CDPS = Chronic Illness and Disability Payment System; COC = Continuity of Care; ER = emergency room; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; IVD = ischemic vascular disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCP = primary care practice.

1.2.4 Expected Impact on Outcomes

Table 1-4 shows the outcomes measured, as well as the expected direction of the change estimates for each outcome relative to the non-PCMH and PCMH CGs. For example, given the objectives of MAPCP Demonstration, and PCMHs in general, a significant *increase* in the number of primary care visits and a significant *decrease* in total expenditures are *expected* outcomes. In contrast, a significant *increase* in all-cause admissions and a significant *decrease* in the number of follow-up visits within 14 days after hospital discharge are *unexpected* outcomes.

Table 1-4
Outcome measures and expected directions for change estimates

Category	Outcome	Expected direction
Access to care and coordination of care	Primary care visits (per 1,000 beneficiary quarters)	+
	Medical specialist visits (per 1,000 beneficiary quarters)	–
	Surgical specialist visits (per 1,000 beneficiary quarters)	–
	Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)	+
	30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)	–
Expenditures	Total expenditures	–
	Acute-care expenditures	–
	Post-acute care expenditures	–
	ER expenditures	–
	Outpatient expenditures	–
	Specialty physician expenditures	–
	Primary care physician expenditures	+
Utilization	All-cause admissions	–
	ER visits not leading to hospitalization (per 1,000 beneficiary quarters)	–
Processes of care	HbA1c Testing	+
	Retinal eye examination	+
	LDL-C screening	+
	Medical attention for nephropathy	+
	Received all 4 diabetes tests	+
	Received none of the 4 diabetes tests	–
	Total lipid panel	+
Avoidable events	Avoidable catastrophic events	–
	PQI admissions—overall	–
	PQI admissions—acute	–
	PQI admissions—chronic	–

NOTE:

Shown are the outcomes measured, as well as the expected direction of the change estimates for each outcome.

ER = emergency room; LDL-C = low-density lipoprotein cholesterol; PQI = Prevention Quality Indicator

1.2.5 Quantitative Methods for Evaluating Outcomes

The statistical approach for the quantitative data analysis consists of baseline descriptive statistics and four types of regression modeling:

- *Linear regression*, used for all expenditure outcomes in Medicaid and Medicare. For the Medicaid analysis, expenditures exceeding the 99th percentile were truncated at

the 99th percentile to reduce the influence of outlier observations. Medicare expenditures were not truncated.

- *Negative binomial regression*, used for all visit and hospitalization outcomes in Medicare.
- *Logit regression*, used for the six quality-of-care outcomes for beneficiaries with diabetes, the one quality-of-care outcome for Medicare beneficiaries only with ischemic vascular disease (IVD), and six additional quality-of-care outcomes for Medicaid beneficiaries only. Visit outcomes for the Medicaid analysis were analyzed using logit regression because the nonelderly adults and children comprising our sample use services less frequently than the elderly Medicare population, and thus a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter was more appropriate.
- *Ordered logit regression*, used for two access to care measures—primary care visits as a percentage of total visits and the COD Index.

Descriptive Statistics

For initial descriptive statistics, we reported demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in each state initiative during the 3 years of the MAPCP Demonstration. We aggregated the characteristics to the state level, reporting either the mean attribute (e.g., mean age) or the percentage of demonstration beneficiaries with the attribute (e.g., percentage White). These statistics were calculated using each beneficiary's eligibility fraction during the first year of his or her participation in the MAPCP Demonstration as a weight to produce weighted means and percentages. We also report in *Appendices E* (Medicare) and *F* (Medicaid) the weighted quarterly averages of major outcomes separately for demonstration and CG beneficiaries. The number of Medicare and Medicaid beneficiaries contributing to these averages is also included in *Appendices G* (Medicare) and *H* (Medicaid). The weighted averages cover the demonstration period, as well as the 8 quarters immediately preceding the demonstration. The weights used to calculate these averages are the analytic weights—the combination of quarterly eligibility fractions and entropy balancing weights. (Entropy balanced weights are discussed in *Section 1.2.6*.) Although entry into the MAPCP Demonstration was rolling and beneficiary-dependent, average quarterly outcomes were reported for the group as a whole.

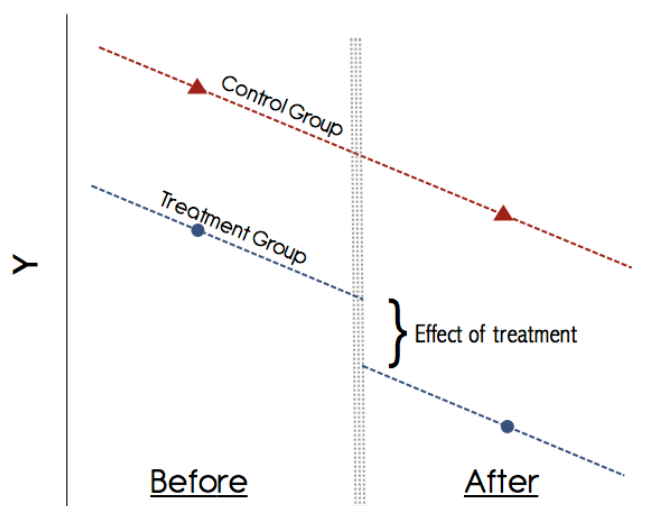
Regression Modeling

The regression models form the basis for measuring changes in outcomes. Because we examined two types of changes—one relative to beneficiaries assigned to the comparison PCMHs and the second relative to beneficiaries assigned to the comparison non-PCMH—each outcome is modeled twice.

The statistical approach for the quantitative data analysis consisted of estimating “modified” difference-in-differences (D-in-D) regression models. This section provides an overview of the traditional D-in-D model, along with an interpretation of the D-in-D estimate. We first present the traditional D-in-D specification to establish the model, and then introduce modifications made to the traditional model.

Figure 1-2 illustrates the traditional D-in-D model. D-in-D analyses compare the change in outcomes (e.g., before vs. after assignment to a MAPCP Demonstration primary care practice) among MAPCP Demonstration beneficiaries to the same change (before vs. after assignment to a CG primary care practice) among CG beneficiaries. A key advantage of the D-in-D approach is that it accounts for changes over time, thereby providing more accurate estimates of the impact of the MAPCP Demonstration. For example, beneficiaries assigned to comparison practices could have started with higher average expenditures than beneficiaries assigned to MAPCP Demonstration practices. Assuming that both groups had similar expenditure trends over time, we would expect demonstration beneficiaries to have lower average expenditures over time, even in the absence of the MAPCP Demonstration, because the MAPCP Demonstration started with lower average expenditures than the CG. However, with the MAPCP Demonstration, we expect their expenditures to be even lower than they would have otherwise been. **Figure 1-2** illustrates this concept.

Figure 1-2
Graphical representation of the difference-in-difference framework



Equation 1.1 is the mathematical representation of how to estimate the “effect of treatment” from **Figure 1-2**. This equation represents a simple pre-post D-in-D regression model. *MAPCP* is an indicator of whether the beneficiary was assigned to a MAPCP Demonstration practice. *Post* is an indicator that equals zero for all quarters prior to the MAPCP Demonstration and 1 for all quarters after the start of the MAPCP Demonstration. The regression coefficient β_3 is the D-in-D parameter. A regression estimate of β_3 measures the difference (or change) in the average outcome before and after the demonstration for MAPCP Demonstration beneficiaries relative to the difference (or change) in the average outcome before and after the demonstration for comparison beneficiaries. In addition, **Equation 1.1** includes a residual term, denoted by ε , that represents differences in the outcome among beneficiaries not explained by any of the other variables in the model.

$$\text{Outcome} = \beta_0 + \beta_1 \text{MAPCP} + \beta_2 \text{Post} + \beta_3 \text{MAPCP} * \text{Post} + \varepsilon \quad (1.1)$$

We used linear, ordinary least squares specification to model expenditure outcomes. In these linear specifications, a *negative* value corresponds to *slower growth* in expenditures for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, which could occur in one of the following ways:

- Average expenditures increased among comparison beneficiaries and decreased among MAPCP Demonstration beneficiaries;
- Average expenditures increased among both groups but at a slower rate among MAPCP Demonstration beneficiaries; or
- Average expenditures decreased among both groups but at a faster rate among MAPCP Demonstration beneficiaries.

Conversely, a *positive* value corresponds to *faster growth* in expenditures for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, which could also occur in one of three ways:

- Average expenditures increased among MAPCP Demonstration beneficiaries and decreased among comparison beneficiaries;
- Average expenditures increased among both groups but at a slower rate among comparison beneficiaries; or
- Average expenditures decreased among both groups but at a faster rate among comparison beneficiaries.

To better understand whether the D-in-D estimate from each of the regression models in each state chapter reflected large changes in the average outcome among MAPCP Demonstration beneficiaries, among CG beneficiaries, or among both beneficiary groups, we provided model-predicted changes in each outcome for each state in *Appendices I* (Medicare) and *J* (Medicaid).

For utilization outcomes, we used a negative binomial version of the D-in-D specification. Interpretation of the D-in-D parameter is similar. However, a *negative* value corresponds to a *decrease* in the rate of events for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, whereas a *positive* value corresponds to an *increase* in the rate of events for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, in these nonlinear variants. Finally, some outcomes we analyzed in this report were binary or ordered categorical outcomes. For these outcomes, we used a logistic or ordered logistic framework, and the interpretation is again slightly different. Within these frameworks, a *negative* value corresponds to a *decrease* in the likelihood of an event or category occurring for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries, whereas a *positive* value corresponds to an *increase* in the likelihood of an event or category occurring for the MAPCP Demonstration beneficiaries relative to comparison beneficiaries. Additional technical detail about our nonlinear specifications can be found in *Appendix C*, including some additional minor modifications that were made for some of these nonlinear models but do not substantively affect the interpretation.

As mentioned above, we modified the basic model in *Equation 1.1*. Specifically, we modified *Equation 1.1* in four ways to address specific aspects of the MAPCP Demonstration design:

1. To account for rolling entry at the beneficiary level, we mimicked the process of assigning beneficiaries to primary care practices in the CG and included a variable in the model that controls for the quarter of assignment. This allowed us to provide impact estimates that capture changes in expenditures/utilization/quality before and after a beneficiary's assignment to a practice, rather than before and after the start of the MAPCP Demonstration in a state.
2. The regression specification allowed us to provide impact estimates that can vary from quarter to quarter throughout the demonstration. We accomplish this by including indicators that represent each calendar quarter before and after a person is assigned to a MAPCP Demonstration or CG practice. These quarterly time indicators allowed for flexible control of outcome trends across both the pre-demonstration and demonstration periods. We then interacted each *demonstration* quarterly indicator (i.e., the *Post* variable) with (1) the indicator representing whether the beneficiary was in the MAPCP Demonstration group or the CG (i.e., the *MAPCP* variable) and (2) an indicator that the demonstration quarter was a quarter in which the beneficiary was assigned to a practice (i.e., a *Post-Assignment* indicator). These interactions allowed us to estimate a separate D-in-D parameter for each demonstration quarter, and thereby allowed the impact of the MAPCP Demonstration intervention effect to grow or decline in potentially different ways throughout the demonstration period. However, we do not present each of the quarter-specific D-in-D estimates. Rather, we present annual averages (i.e., averaged over the first four quarters of participation in the demonstration, second four quarters of participation in the demonstration, and so on) and overall averages (i.e., averaged over all 12 to 14 quarters) of the quarter-specific D-in-D estimates. This summarized the evidence in a way that allows us to focus on annual-level and overall trends in impact estimates.
3. We added a number of beneficiary-, practice-, and area-level characteristics to the model to control for group differences. These are briefly presented in the following paragraphs. See *Appendix C* for more detail about the modified D-in-D specifications that we used.

Beneficiary-level variables. *For Medicare:* Age, sex, HCC score, Charlson Comorbidity Index score, and indicators for White, disability status, Medicaid, ESRD, and institutionalization. *For Medicaid:* Age, sex, Chronic Illness and Disability Payment System (CDPS), low birthweight/perinatal conditions (for the child-specific models), and indicators for race, disability status, institutionalization, and continuous enrollment from the time a patient first entered the Medicaid data through the last month of Medicaid enrollment.

Practice-level variables. An indicator of solo practitioner practice, an indicator of whether each MAPCP Demonstration practice was a PCMH pilot practice,³ and the proportion of associated billing providers with primary care specialties, FQHCs, CAHs, and RHCs.

County-level variables. Median household income (in increments of \$10,000) and population density in the beneficiary's most recent county of residence.

State-level variables. In the three states that include some out-of-state practices in their CGs for Medicare, we include a variable identifying the out-of-state practices to control for any time-invariant differences between the outcomes across the states. In New York, the model includes an indicator for the Michigan practices included in the CG. In North Carolina, the model includes a variable for the Maine practices included in the CG. In Vermont, the majority of comparison practices came from New Hampshire, with the addition of several practices from Maine, Massachusetts, and Michigan. Indicators for these latter three states were included in the Vermont analyses.

4. We factored in the entropy balancing weight to the regression model. See *Section 1.2.6* for additional detail on the entropy balancing weight.

Finally, we conducted two additional analyses not presented in the state chapters. The first, which can be found in *Appendix K*, was a sensitivity analysis of the potential impact that rolling assignment may have had on the MAPCP Demonstration. This was important because assignment occurred at unequal intervals among MAPCP Demonstration and comparison beneficiaries (on a quarterly basis for MAPCP Demonstration beneficiaries and annually in the CG). The analysis focused solely on Medicare FFS beneficiaries who were assigned at the start of the state's demonstration and who were continuously assigned to a practice in all quarters of the demonstration. This subset of beneficiaries does not include persons who died, moved out of state, lost Medicare eligibility, or otherwise failed to meet the assignment criteria in any quarter of the demonstration. This subset also excludes beneficiaries who were assigned after the demonstration started. This analysis therefore focuses on beneficiaries in the MAPCP Demonstration with the largest degree of continuity with respect to their state's assignment criteria. The second, which can be found in *Appendix L*, analyzed outpatient expenditures in greater detail. Because Medicare outpatient expenditures include expenditures for CAHs, FQHCs, and RHCs, we separated the expenditures for each of these three settings; we also created new utilization measures that capture primary care visits to CAHs, FQHCs, and RHCs. We did not report CAH, FQHC, or RHC expenditures or primary care visits using Medicaid data because the Medicaid data were not uniform in their definition of these three care settings, and—in some states—the Medicaid data did not identify these specific outpatient settings separately.

³ Before CMS joined each state's initiative, PCMH activities were ongoing in each state. These pre-MAPCP Demonstration activities are collectively known as a state's PCMH Pilot. These activities involved payment redesign and practice transformation efforts supported by state and private payers. If the beneficiary was in a practice that participated in a PCMH Pilot, we controlled for that. CG beneficiaries did not participate in the PCMH Pilot. In New York, North Carolina, and Pennsylvania, all MAPCP Demonstration practices had participated in pilot activities before the start of the demonstration, so this covariate was not included in the models for these three states.

1.2.6 Reweighting the CG to Resemble Beneficiaries in the MAPCP Demonstration

For these analyses, Medicare and Medicaid beneficiaries were not randomly assigned to a MAPCP Demonstration primary care practice or a CG practice. Therefore, beneficiaries in the demonstration group and the CG were not guaranteed to resemble one another. If differences between demonstration and comparison individuals were associated with particular outcomes, then the relationship between participation in the MAPCP Demonstration and outcomes could not be solely attributed to participation in the MAPCP Demonstration. For example, there could be substantially more females in the CG than in the demonstration group. If gender predicted one or more of the analyzed outcomes, then observed differences in outcomes across the demonstration and CGs may have been attributed to the presence of more females in the CG or attributed to the effect of the MAPCP Demonstration intervention. To remove this uncertainty, we statistically adjusted the CGs so that they more closely resembled demonstration beneficiaries with respect to key characteristics.

Specifically, we reweighted (or balanced) demonstration and comparison beneficiaries on the variables in **Table 1-5**. These variables were chosen because they were all potentially related to outcomes and captured important elements related to the MAPCP Demonstration design. It is important to note that for variables that changed over time (e.g., HCC risk scores), we only balanced the two groups on their values 1 year prior to their assignment to either the demonstration or CG. This is necessary to avoid a new source of bias where the impact of the demonstration on outcomes is essentially “balanced out.” For example, if the demonstration was associated with decreasing morbidity risk scores over time, then balancing the CG on those lower scores over time would likely negate the impact of the demonstration on the outcomes that occurred through the process of decreasing the risk score. For that reason, variables in **Table 1-5** that were not fixed over time were balanced on their values in the year prior to their assignment.

In this report, we used entropy balancing to reweight CG beneficiaries. Entropy balancing (Hainmueller & Xu, 2013) is a relatively new method for creating a weight—that is, a numeric value assigned to each beneficiary in the CG. Larger weights are assigned to beneficiaries with underrepresented characteristics so that they contribute more to overall group averages, whereas smaller weights are assigned to beneficiaries with overrepresented characteristics so that they contribute less to overall group averages. The entropy balancing weight maximizes similarities within the study sample while minimizing the variation between the estimated set of weights within the study sample. To illustrate the impact of reweighting, **Table 1-6** presents the mean values for the variables listed in **Table 1-5** before and after the application of the entropy weights. This example shows the effect of balancing the Medicare PCMH CG with Medicare MAPCP Demonstration beneficiaries from New York. Prior to weighting, there are identifiable differences in the mean values between the two groups. The size of those differences is quantified using standardized differences; a difference greater than 0.10 (in absolute value) denotes meaningful variation between groups. After weighting, there is virtually no difference in group means for any of the variables included in the entropy balancing model. Although there still exists a discernible difference between the MAPCP Demonstration and PCMH CG in terms of population density, the weighted average population density among beneficiaries assigned to PCMH comparison practices is substantially more similar to the average population density among beneficiaries assigned to MAPCP Demonstration practices. Furthermore, the standardized difference is very small, indicating that the remaining difference after weighting is negligible.

Table 1-5
Beneficiary-, practice- and regional-level characteristics balanced between MAPCP
Demonstration and CG beneficiaries

Balanced in Medicare and Medicaid analysis	Balanced in Medicare analysis only	Balanced in Medicaid ¹ analysis only
Age ⁺	HCC score ⁺	CDPS score ⁺
Sex	Charlson Index Comorbidity Score ⁺	Presence of perinatal conditions (children only) ⁺
Race	ESRD ⁺	Indicator for being continuously enrolled from the time beneficiaries first entered the Medicaid data through their last month of Medicaid enrollment
Disability status ⁺	Enrollment in Medicaid ⁺	
Institutionalization ⁺		
Percentage of associated providers with a primary care specialty		
Non-solo provider practice		
FQHC		
RHC		
CAH		
Regional level ²		
Median household income ³		
Population density ⁴		

⁺ Variable was balanced based on information from the year prior to assignment. To adjust for morbidity in the Medicaid population, we used the CDPS. CDPS is a diagnostic classification system originally developed for states to use in adjusting capitated payments for TANF and disabled Medicaid beneficiaries and used to predict Medicaid costs. We use the CDPS because the HCC score to measure beneficiary morbidity is available only for the Medicare population.

¹ Individuals dually enrolled in Medicare and Medicaid were excluded because they were present in the Medicare study population.

² Regional variables based off of beneficiary address.

³ Per \$10,000.

⁴ Per 10,000 persons.

CAH = critical access hospital; CDPS = Chronic Illness and Disability Payment System; CG = comparison group; ESRD = end-stage renal disease; HCC = Hierarchical Condition Category; FQHC = Federally Qualified Health Center; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = Rural Health Center; TANF = Temporary Assistance for Needy Families.

Table 1-6
Example of the effects of entropy balancing:
New York: Medicare MAPCP Demonstration and Medicare PCMH CG beneficiaries

	MAPCP Demonstration (N = 29,093)	PCMH comparison			
		Unweighted		Weighted	
		(N = 66,819)	Standardized difference	(N = 66,857)	Standardized difference
Age	68.48	66.99	0.10	68.47	0.00
Female	55.6%	55.4%	0.00	55.6%	0.00
Non-White	2.7%	10.3%	-0.31	2.8%	0.00
Disabled	32.8%	38.4%	-0.12	32.8%	0.00
Institutionalized	0.1%	0.3%	-0.03	0.1%	0.00
HCC risk score	1.04	1.04	0.00	1.04	0.00
Charlson Comorbidity Index score	0.81	0.82	-0.01	0.81	0.00
ESRD	0.7%	0.9%	-0.01	0.7%	0.00
Medicaid dual eligible	24.2%	30.2%	-0.13	24.2%	0.00
Percent primary care	90%	66%	1.50	90%	0.00
Non-solo primary care	89%	97%	-0.31	89%	0.00
FQHC	39%	25%	0.31	39%	0.00
RHC	0%	0%	—	0%	—
CAH	5%	2%	0.15	5%	0.00
Median household income	50,800	49,300	0.25	50,800	0.00
Population density	230.7	1,758.9	-0.22	297.4	-0.03

CAH = critical access hospital; ESRD = end-stage renal disease; HCC = Hierarchical Condition Category; FQHC = Federally Qualified Health Center; — = not applicable; RHC = rural health center.

In this report, the MAPCP Demonstration beneficiaries were compared separately to PCMH and non-PCMH comparison beneficiaries in almost all states.⁴ Therefore, balancing weights were estimated separately for both CGs. In addition, because Medicaid analyses were stratified by age, Medicaid-eligible adults and children were also balanced separately for both the PCMH and non-PCMH CGs. For a more detailed description of the balancing used in this report, and to see its impact for all states and CGs, please see *Appendices M* and *N*.

1.2.7 Methods for Evaluating Medicare Budget Neutrality

In this section, we describe our methodology for determining whether Medicare's participation in the state initiative is budget-neutral. The budget-neutrality analysis was limited

⁴ The Medicare analysis for Minnesota included comparison with a non-PCMH CG only. The Medicaid analysis for Maine included comparison with a non-PCMH CG only. Additional details can be found in Chapter 9.

to Medicare beneficiaries⁵ and conducted for each state separately.^{6,7} Budget neutrality was determined for all quarters of the MAPCP Demonstration. In deciding whether a state initiative was budget-neutral to Medicare, we focused on the change relative to the PCMH CG as well as the change relative to the non-PCMH CG. This change isolates the differences associated with payments received by MAPCP Demonstration PCMHs from Medicare to manage their beneficiaries and captures other features of the state initiative implemented after CMS joined each state initiative.

Gross Savings

Gross savings were estimated from the regression model in *Equation 1.1 (Section 1.2.5)*. The 12, 13, or 14 quarterly γ coefficients ($\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5, \gamma_6, \gamma_7, \gamma_8, \gamma_9, \gamma_{10}, \gamma_{11}, \gamma_{12}, \gamma_{13}, \gamma_{14}$) were used to calculate quarter-specific estimates of average gross savings per demonstration beneficiary in that quarter relative to beneficiaries assigned to the CG. The weighted sum of the 12, 13, or 14 quarterly γ coefficients—weighted by the respective number of demonstration beneficiaries in each quarter, then multiplied by the number of beneficiary quarters—gave an estimate of total gross savings, or potentially “negative” savings, associated with the demonstration to date. A *negative* estimate of γ indicates that the MAPCP Demonstration was associated with a *reduction* in the Medicare Part A and B expenditures trend (relative to the CG), which translates to *positive* gross savings. Conversely, a *positive* estimate of γ indicates that the MAPCP Demonstration was associated with an *increase* in the Medicare Part A and B expenditures trend (relative to the CG), which translates to *negative* gross savings. Gross savings, then, were calculated simply by switching the sign of the 12, 13, or 14 quarterly γ coefficients.

MAPCP Demonstration Payments

In the MAPCP Demonstration, CMS was making monthly MAPCP Demonstration payments to PCMHs for assigned demonstration beneficiaries. In some states, CMS was also making MAPCP Demonstration payments to CHTs or similar entities to support the practices. Each state determined the dollar amounts of the payments to be made to practices and these other entities. Detailed information on MAPCP Demonstration payments is found in *Tables 3-4* and *3-5*. The determination of budget neutrality was inclusive of all payments for PCMH services made by CMS to MAPCP Demonstration practices, CHTs, and any other entities for beneficiaries with at least 3 months of eligibility. This 3-month eligibility criterion was used for consistency with the beneficiaries included in the regression models. Monthly MAPCP Demonstration payments were aggregated to the quarter level from Medicare claims data containing the official record of payments.

⁵ Savings are possible across all demonstration beneficiaries, including commercial and Medicaid beneficiaries, but our focus will be exclusively on Medicare beneficiaries.

⁶ In Pennsylvania, budget neutrality is estimated separately for the northeast and southeast regions.

⁷ In Minnesota, because of the absence of a PCMH CG, budget neutrality is estimated relative to non-PCMH practices.

Net Savings

Budget neutrality, or *net savings*, for a given period (NS_{period}), is defined in **Equation 1.2** as the non-negative difference between *gross savings* (GS_{period}), minus total Medicare MAPCP Demonstration payments ($TFee_{\text{period}}$). In this report, net savings are calculated by summing across the 12, 13, or 14 quarterly estimates of gross savings and subtracting total MAPCP Demonstration fees paid by CMS over the evaluation period.

$$NS_{\text{SAR}} = GS_{\text{SAR}} - TF_{\text{SAR}} = \sum_{\text{qtr}}^8 GS_{\text{qtr}} - \sum_{\text{qtr}}^8 TF_{\text{qtr}} \quad (1.2)$$

Net savings were negative if the MAPCP Demonstration payments exceeded gross savings, or if gross savings themselves were negative (i.e., the demonstration was associated with increased Medicare Part A and B expenditures). If net savings were non-negative, the MAPCP Demonstration was considered to be budget-neutral.

Statistical Test of Budget Neutrality

The regression method allows for statistical testing of whether gross savings more than cover the total MAPCP Demonstration payments. We tested for statistical significance of gross savings based on whether the lower limit of the confidence interval for total gross savings exceeded the total amount of MAPCP Demonstration payments. If it did, we concluded that the gross savings was both large and precise enough to be statistically significant and thus the demonstration in that state was budget neutral. If it did not, we concluded that the net savings was not statistically significant and thus the demonstration in that state was not budget neutral.

1.2.8 Cross-State Quantitative Methods

The cross-state quantitative analyses used pooled data for the eight MAPCP Demonstration states to identify differences in outcomes associated with state initiative features or practice characteristics. The cross-state quantitative analyses were limited to Medicare beneficiaries and included data for the baseline period and the first 3 years of the demonstration in each state. Analyses were conducted for four key outcomes:

- Total expenditures;
- Expenditures for acute-care hospital services;
- All-cause admission rates; and
- Rate of emergency room (ER) visits not leading to a hospitalization.

The regression models for individual state analyses described earlier in this section were adapted for the cross-state analyses. The individual state regression models were modified in the following ways for all of the cross-state analyses:

- To account for differences in the start dates of the demonstrations, quarter variables (Q_t) were defined relative to the start of a state's demonstration, rather than based on calendar quarter. $Q_{t=dq_1}$ represented the first month of the demonstration in all states. Because the quarter variables represent different calendar quarters depending on a

state's demonstration start date, we also included seasonal variables to control for seasonal variation in outcomes. The seasonal variable associated with a demonstration quarter will vary depending on the quarter the state's demonstration began.

- State fixed effects were incorporated to account for state differences in outcomes that do not vary over time and that are common to the demonstration and CGs.
- Because the sizes of the state MAPCP Demonstrations varied considerably, observations were weighted so that analyses would not be dominated by the larger state initiatives. Weights for MAPCP Demonstration beneficiaries and CG beneficiaries were calculated separately so that each state contributed equally to the demonstration and CGs. Specifically, observations for the demonstration group in a given state were weighted by the inverse of the ratio of the number of demonstration group observations in that state to the average number of demonstration group observations across all states. Similarly, observations for the CG in a given state were weighted by the inverse of the ratio of the number of CG observations in that state to the average number of CG observations across all states. These balancing weights were then multiplied by the analytic weights used in the individual state analyses.

One group of cross-state analyses incorporated state initiative features used in the QCA (see **Section 1.7**) in the regression model. Seven state initiative features were examined: four features of the demonstration payment models and three nonpayment-model features. These analyses extended the D-in-D model used in the individual state analyses to a difference-in-difference-in-difference (D-D-D) model to test whether MAPCP Demonstration impacts differed depending on state initiative features. In addition to incorporating state fixed effects and the weights described above, the regression model for the individual state analyses was modified to include a dummy variable representing the presence of an initiative feature in the beneficiary's state and the interaction of that dummy variable with all variables except practice-level and beneficiary-level covariates in the D-in-D model. As an example, this model can be used to test whether the MAPCP Demonstration effect differed for initiatives where payments to practices varied based on patient characteristics. Separate regression models were estimated for each of the seven initiative features. In addition, a regression model was estimated using a dummy variable indicating whether the state initiative had the combination of features identified in the QCA as being associated with success for the outcome being examined (see **Section 1.7**). One set of regressions was run for the combination of payment model features associated with success, and a second set was run for the combination of nonpayment-model features associated with success.

A second group of cross-state analyses examined whether outcomes differed by practice features. One of the practice features, whether the practice was an FQHC, was examined using the regression model described for the state initiative features; a dummy variable for whether the beneficiary was attributed to a practice that was an FQHC was used instead of the dummy variable for a state initiative feature. The remainder of the analyses used information on practice characteristics derived from the practice transformation survey (see **Section 1.5**). These analyses were limited to beneficiaries attributed to MAPCP Demonstration practices responding to the survey. Because the practice transformation survey was not administered to CG practices, these analyses were limited to beneficiaries attributed to demonstration practices. For these analyses,

the D-in-D model used in the individual state analyses was modified, replacing the time-invariant indicator for whether a beneficiary was assigned to a MAPCP Demonstration practice with an indicator for whether the practice had adopted particular PCMH capabilities at a high level, based on responses to practice survey questions in five domains: access, coordination, care management, patient-centeredness, and quality improvement. For each item in a domain, practices were considered to have adopted a particular PCMH capability at a high level if they selected the third (most advanced) answer option associated with a particular PCMH activity in the MAPCP Demonstration provider survey. A separate set of regressions was estimated for each domain. In addition, regressions were estimated using an indicator for whether a practice had adopted a PCMH capability at a high level based on 23 individual items from the practice transformation survey. These regressions were estimated separately for each item.

1.3 Overview of Evaluation Design, Data, and Methods for the Qualitative Data

To address key evaluation questions and complement the quantitative methods, we used a variety of qualitative methods and data. First, we used secondary qualitative data, such as state applications, interim reports, and notes from monthly conference calls with selected state officials responsible for implementing the initiative. Second, we conducted semistructured, in-person interviews with a wide range of key informants during state site visits. Finally, we conducted focus groups with Medicare and Medicaid beneficiaries and their caregivers.

Site visits to MAPCP Demonstration states occurred a total of three times during the evaluation period: in the fall of 2012, 2013, and 2014. The focus of the Year One interviews was to understand more thoroughly how each state initiative was being implemented, what was or was not working well, and any early lessons learned. The interviews focused on two stages of implementation experience (i.e., before and after CMS joined each state initiative) and how the entrance of Medicare (and in some cases, Medicaid) changed the states' initiatives. In Year Two of the demonstration, interviews focused on changes and implementation experiences that had occurred since the Year One site visits in 2012. In Year Three, interviews focused on changes and implementation experiences occurring since the Year Two site visits in 2013. In Year Three, we also focused on the effect of Medicare's decision to participate through the end of 2016 (except in Minnesota, North Carolina, and Pennsylvania) on each state's future plans for its PCMH initiative.

The goal of the site visit interviews was timely identification of actionable promising practices for CMS, as well as states and links among aspects of state initiative features, practice characteristics, and potential outcomes. Interviews in Year One were used to gather and interpret contextual information on how the multi-payer model operated before and after Medicare's entrance, and—in Years Two and Three—since we last interviewed stakeholders and practices. We also sought to understand the potential impact on implementation, practice transformation, and outcomes for Medicare and Medicaid beneficiaries and special populations.

The evaluation team developed protocols for the interviews, designed to address the research questions, which were reviewed by CMS. Specifically, each major research question was “translated” into a set of topics and questions tailored to specific respondent types and state initiatives (Kvale, 1996; Kvale & Brinkman, 2006). The evaluation team produced six generic respondent protocols and then customized them based on state-specific features to ensure that specific and unique features of state initiatives were captured adequately during the interviews.

Respondent types included (1) state officials; (2) physicians and administrators of practices or health care systems participating in the demonstration; (3) individuals representing CHTs and networks; (4) individuals representing payer organizations, including Medicaid; (5) individuals representing local chapters of physician and clinical professional associations; and (6) patient advocates and individuals representing Offices of Aging.

General respondent selection criteria were developed (e.g., to get representatives from diverse types of payers and practices), and potential respondents were identified within each respondent category, primarily through review of secondary documents, input from state program officials, and MAPCP Demonstration tracking documents. We also occasionally used a “snowball” sampling technique (e.g., asking respondents who else they would recommend that we speak to about a particular topic). Based on the geographic areas in each state initiative, the site visit team also targeted different areas of each state, based either on the predefined initiative areas or across urban and rural areas. The evaluation team chose the final list of interviewees, which is confidential.

Types of state officials interviewed included program staff responsible for designing or implementing the multi-payer initiative within a state and Medicaid agency staff knowledgeable about Medicaid’s participation as a payer in the initiative. Interviews with state officials focused on how their multi-payer initiative, including payment model and other efforts to support practice transformation (such as learning collaboratives), was developed and implemented; how specific performance goals were established; and how the state progressed in implementing the initiative over the course of the demonstration. Interviews with staff from participating PCMHs, including staff from CHTs (for those states using CHTs as extensions of the PCMHs), focused on changes made by practices in their delivery of care and use of health IT and capabilities as a result of the initiative. We also focused on their perceptions of the impact on quality and efficiency.

Respondents from participating private payers and patient advocates were selected based on their involvement in the state initiative. Provider respondents—including practice staff, representatives from provider organizations and networks/pods, and CHTs (where applicable, because some states do not have these kinds of teams or networks in their initiative)—were selected to maximize diversity (e.g., urban/rural, size, location within the state, payer mix).

Those selected for interviews were sent an initial e-mail request to participate. Those not responding to the e-mail received a follow-up phone call requesting an interview. The majority of individuals contacted agreed to be interviewed. When individuals were unable or unwilling to participate in an interview, we contacted an alternate on our respondent list. The majority of interviews were scheduled face-to-face during site visits, but some occurred by phone before, during, and after the site visit. Interview duration ranged from 30 to 90 minutes, depending on the type of respondent. A total of 719 interviews were conducted during the three rounds of site visits. **Table 1-7** provides a breakdown of the interviews by state and respondent type.

Table 1-7
Number of interviews by type and state for all three site visits for the evaluation of the MAPCP Demonstration

State	State agency staff ¹	Practices	Community health teams/ community care networks ²	Payers	Provider associations	Office of Aging staff/patient advocates ⁷	Total per state
New York	12	26	19 ³	12	8	—	77
Rhode Island	23	37	2	20	14	4	100
Vermont	18	25	27 ⁴	9	2	3	84
North Carolina	29	27	24 ⁵	9	4	3	96
Minnesota	19	35	—	12	6	11	83
Maine	22	25	14	14	5	10	90
Michigan	22	46	—	11	22 ⁶	3	104
Pennsylvania	15	39	—	16	12	3	85
Total	160	260	86	103	73	37	719

¹ Included contractors, staff of nonprofit organizations, public-private partnerships, and academic institutions involved with the state initiative.

² Michigan, Minnesota, Pennsylvania, and Rhode Island do not include CHTs or community care networks as part of their initiatives.

³ In New York, this category included Pod coordinators, health system administrators, and care managers.

⁴ In Vermont, this category included CHT and SASH staff.

⁵ In North Carolina, this category included care managers provided by community care networks.

⁶ In Michigan, this category included physician organizations.

⁷ Office of Aging staff and patient advocates were not interviewed in New York because of site visit scheduling difficulties.

CHT = community health teams; MAPCP = Multi-Payer Advanced Primary Care Practice; — = not applicable; SASH = Support and Services at Home.

A team of four to eight site visit staff was deployed to each state to conduct interviews. Site visit teams were composed of researchers with different types of substantive and methodological expertise, and they were matched to respondent types (e.g., physician researchers interviewing physicians; researchers with state policy expertise interviewing state officials). Interviews were recorded, and note-takers used the audio files to fill in gaps in their typed notes produced during the interview. In Years One and Two, interview notes then were coded and analyzed.

To manage and analyze the large volume of primary and secondary qualitative data, we used the qualitative data analysis software NVivo.⁸ This software is designed especially for qualitative and mixed-methods research and allows integration of other data sources and comparisons within and across states over time (Bazeley & Richards, 2000; Richards, 2009; Sorensen, 2008).

⁸ <http://www.qsrinternational.com>

In Year Three, interviewers and note-takers summarized key interview findings in a structured Site Visit Summary form during nightly debriefings while on site or immediately after the site visit. Key information from different team members' preliminary notes was merged into a single Site Visit Summary form, reviewed, discussed, and collectively approved by each state team. Site Visit Summary forms then were used to draft the state chapters, supplemented by a review of finalized, full-text interview notes from relevant interviewees. The site visit interview notes were loaded into NVivo, and site visit team members ran text-based queries to gain a better understanding of areas of agreement or disagreement among team members and to fill in details absent from the Site Visit Summary form.

In this Final Report, our analysis focuses on how implementation—particularly practice transformation, relationships with other providers (e.g., specialists and hospitals), and links with other community organizations—progressed and changed during the demonstration. When evaluating each state MAPCP Demonstration, we primarily conducted within-state case studies, although the report includes two cross-state chapters examining major similarities and differences across demonstration states, initiatives, and aspects of their implementation experience. Our primary focus was describing implementation progress and key changes within state initiatives during the demonstration; state initiative features and their evolution over time; the extent to which implementation and practice transformation occurred as intended; perspectives of key stakeholders and lessons learned; and perspectives on the potential impact on Medicare and Medicaid beneficiaries and special populations.

Focus Group Methodology

To learn in depth about beneficiaries' and their caregivers' experiences with the MAPCP Demonstration, we conducted in-person focus groups with Medicare, Medicaid, and dually eligible beneficiaries and their caregivers.

We recruited participants by mailing letters to Medicare and Medicaid beneficiaries, inviting them (or their caregiver) to participate. To identify Medicare and dually eligible beneficiaries, we used the Medicare EDB. To identify Medicaid beneficiaries, selected practices generated a random sample of Medicaid beneficiaries who had received care at their practice over the previous 12 months. Beneficiaries (or their caregivers) who received an invitation were asked to call The Henne Group to be screened for eligibility and placed into a group. Eligibility criteria were as follows:

- Were age 18 or older;
- Were fluent in English;
- Had the MAPCP Demonstration practice as their primary source of care;
- Had received care at this practice for more than 1 year;
- Saw a provider at the practice two or more times in the past year;
- Saw a specialist in the past year;
- Had a chronic condition; and

- For caregivers, usually or always accompanied the beneficiary to the primary care practice.

The intention was to conduct 12 groups in each state: one in each of six categories in two different geographic areas. As shown in **Table 1-8**, we conducted between nine and 12 focus groups per state, for a total of 81 focus groups with a total of 490 participants. The characteristics of participants, by state, are presented in **Appendix O**. We did not conduct groups for which fewer than three participants showed up. We conducted the groups between July and November 2014.

Table 1-8
Number of focus groups by state and group type

State	Medicare low-risk ¹	Medicare high-risk ²	Medicaid	Dually eligible	Caregivers of Medicare and dually eligible	Special populations/ caregivers of children with Medicaid	Total focus groups
New York	2	2	2	2	2	—	10
Rhode Island	2	2	2	2	2	—	10
Vermont	2	2	2	2	2	2 ³	12
North Carolina	2	2	2	2	2	—	10
Minnesota	2	2	1	2	2	—	9
Maine	2	2	2	2	2	—	10
Michigan	1	2	2	2	2	1 ⁴	10
Pennsylvania	2	2	2	2	2	—	10
Total	15	16	15	16	16	3	81

¹ Based on HCC score of less than 1.22.

² Based on HCC score of 1.22 or higher.

³ Participants in the SASH program.

⁴ Caregivers of children with Medicaid.

HCC = Hierarchical Condition Category; — = not applicable; SASH = Support and Services at Home.

An experienced focus group moderator moderated all of the groups, following a discussion guide (**Appendices P** and **Q**). Each group discussion was audio-recorded and transcribed. A more detailed description of the recruitment and implementation process is provided in **Appendix O**.

To analyze the data, we developed a coding scheme based on key topics in the discussion guide. We uploaded all transcripts into NVivo qualitative data analysis software. A team of analysts jointly coded two transcripts to assess intercoder reliability, refine the coding scheme, and resolve any differences in interpretation. Once the coding scheme had been finalized, the analysts coded all transcripts using NVivo and performed content analysis to summarize the findings.

1.4 Methods for Evaluating CAHPS PCMH Survey Data

The evaluation of the MAPCP Demonstration examined a wide range of health-related outcomes, as well as beneficiary experience with care. The MAPCP Demonstration may affect beneficiaries, their families, and their caregivers by improving accessibility and COC Index in the PCMHs; by promoting patient self-management and patient/family involvement in decision making about care choices; and by increasing coordination of care with providers within and outside of participating practices. Early in the MAPCP Demonstration evaluation period, we reviewed the MAPCP Demonstration states' approaches to evaluating beneficiary experience and found that few states had firm plans to evaluate patient experience. Therefore, we fielded the CAHPS PCMH survey—tailored to patients in PCMHs—in April and May 2014 among MAPCP Demonstration Medicare beneficiaries using a standard protocol and sampling framework across all states. Patient experience was measured by the 12-month version of the CAHPS PCMH survey. This 52-item instrument was derived from the widely used CAHPS Clinician & Group CG-CAHPS version, supplemented with additional items especially relevant to patients receiving care from PCMHs. A copy of the survey instrument is reproduced in *Appendix R*. Further details about sampling procedures and statistical analyses may be found in *Appendix S*.

Composite Scales

Six multi-item composite scales have been created for the CAHPS PCMH survey. These scales combine related items to form summary scores that are more precise indicators of patient experience than any single item. The six composites are:

1. **Access to care.** A five-item measure about getting appointments and answers to medical questions in a timely manner.
2. **Communication with providers.** Six items regarding the quality of interactions with a PCP.
3. **Comprehensive-behavioral/whole person orientation.** Three yes/no items concerning discussions about stress, depression, and family problems.
4. **Self-management support.** Two yes/no questions about goal setting and barriers to care.
5. **Shared decision making.** Three items regarding medication use.
6. **Office staff.** Two items about interactions with medical practice office staff.

Most items were measured using four-point response scales. All composites are scored from 0 to 100, with higher scores indicating more favorable results. The individual items comprising each composite are listed in *Appendix S*.

Comparison Standards

We surveyed only MAPCP Demonstration Medicare beneficiaries, given the challenges of obtaining up-to-date contact information of Medicare beneficiaries from a CG of primary care practices in each MAPCP Demonstration state. Two surveys were to be administered to assess

change in beneficiary experience over time, as primary care practices moved further along the PCMH transformation continuum. However, Office of Management and Budget Paperwork Reduction Act approval took longer than anticipated; thus, only one survey was fielded in the final year of the demonstration. Because the CAHPS PCMH survey was administered at one point in time to MAPCP Demonstration beneficiaries only, we compared our results with scores from two large studies to facilitate the interpretation of the MAPCP Demonstration results.

The first comparison standard was the CAHPS Database. Compiled by Westat under a contract with the Agency for Healthcare Research and Quality (AHRQ), this is a repository for health care plans interested in developing benchmarks for their programs. The database contains information from plans that voluntarily chose to share their data. We obtained the summary data for individual items and composites for the Adult 12-month four-point scale PCMH 2.0 version for 2012, the most recent data available at the time the survey was fielded and analyzed. A total of 320 medical practices contributed data to the repository.

The second study was based on analyses conducted in 2011 for the Massachusetts Health Quality Partners (MHQP) study. This was the source of the original psychometric assessments for the CAHPS PCMH survey composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area. The MHQP means were consistently lower than the CAHPS Database means.

Survey Sample

The target population for the survey was Medicare beneficiaries assigned to the demonstration practices in eight states. The surveys were powered to detect an 8 percent difference (63% versus 55%) between a MAPCP Demonstration state's score and the CAHPS Database mean for a single global item. This criterion produced a desired sample size of 512 completed surveys per state. After factoring in the anticipated 35 percent response rate, we randomly sampled 1,463 demonstration beneficiaries from each state. Because Rhode Island had recently completed its annual CAHPS PCMH survey, we obtained its survey data rather than administer our own survey to reduce respondent burden. We eliminated respondents younger than 65 and those who completed surveys by telephone to make the Rhode Island group as similar as possible to respondents of the RTI mail survey. Final response rates are detailed in **Table 1-9**. All response rates exceeded our projected 35 percent response rate; therefore, the analysis was appropriately powered to detect differences between the MAPCP Demonstration state's score and the CAHPS Database.

Table 1-9
MAPCP Demonstration CAHPS PCMH survey dispositions and response rates, by state

Survey disposition	New York	Rhode Island*	Vermont	North Carolina	Minnesota	Maine	Michigan	Pennsylvania
Number of completed surveys	630	544	627	634	602	643	599	584
Response rate (% of eligible)	44.6%	46.1%	44.3%	45.3%	43.3%	46.2%	42.6%	41.6%

* Rhode Island data were limited to beneficiaries aged 65 years and older and were collected using a different survey methodology.

CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

Composite Scores

For each state, we computed the mean score and standard error for each CAHPS PCMH survey composite.

1.5 Methods for Evaluating Practice Transformation Survey Data

Given the different PCMH practice recognition tools and additional state-specific requirements in the demonstration states (described in **Section 3.3**), we developed and fielded a survey to provide a common metric to measure PCMH activities across the eight demonstration states. We fielded this Web-based survey in early 2015—3 or more years into each state’s demonstration. We split our survey into two parts to minimize respondent burden. A practice manager survey (**Appendix T**) asked about basic practice characteristics, such as practice type and whether the practice had a care manager, and a separate provider survey (**Appendix U**) asked more complex questions about the degree of a practice’s performance of various aspects of the PCMH model, such as whether practices provided 24-hour-a-day, 7-day-a-week access to urgent care, and whether practices followed up with patients after they were seen in the hospital, along with a few provider characteristics questions, such as how long responding providers had been with their practice.

We surveyed all active demonstration practices; of these 975 practices, 68 percent completed our practice manager survey and 54 percent completed our provider survey. (State-by-state response rates appear in **Appendix V**.) An analysis of the characteristics of responding practices versus nonresponding practices is included in **Appendix V**; generally speaking, respondents and nonrespondents were similar, although the practices that did not respond to our survey were more likely to be large (with an average number of providers of 87.7, as opposed to 48.5), and they were 6.4 percentage points less likely to have participated in their state’s PCMH initiative prior to Medicare joining the effort; some of the characteristics of the counties they operated in also varied.

In statistical analyses of practice transformation survey data, we adjusted standard errors to correct for clustering at the practice level, because multiple providers from the same practice provided survey responses in some cases. This adjustment ensured that we did not understate standard errors in our statistical testing.

We present several sets of analyses of our practice transformation survey data in this report:

Descriptive statistics. We compare average overall PCMH performance, as well as performance within specific PCMH domains and for specific PCMH activities in each of the eight states in *Section 3.3.4*. This section also identifies those domains and activities that tended to be “low-hanging fruit”—activities that practices could often perform at a high level—in contrast to more advanced capabilities that were somewhat more challenging for practices to engage in at the time of our survey.

We identify and discuss above-average and below-average PCMH provider survey performance in each of our state chapters (*Chapters 4* through *11*). In these chapters, we also contextualize these findings by noting which PCMH capabilities particular states emphasized, the experiences of the practice staff we interviewed as they attempted to engage in these activities, and the degree to which the Medicare and Medicaid beneficiaries in focus groups and the Medicare beneficiaries we surveyed reported experiencing these practice activities.

Pooled multistate analysis of characteristics of high performers. We identify which types of practices and providers were most likely to be high-level PCMH performers in *Section 2.2*. For this analysis, we pooled survey data across the eight states, merged practice manager survey and provider survey data, and estimated regression-adjusted means identifying which practice and provider characteristics were associated with higher levels of PCMH performance. To derive these regression-adjusted averages, we first estimated an ordinary least squares (OLS) regression model, where the Overall Practice Transformation Index was the dependent variable and a series of provider and practice characteristics were the independent variables. We estimated the models using state fixed effects to capture the influence of any otherwise unobservable time-invariant, state-specific factors associated with our outcome of interest. To estimate state fixed effects, we included a binary variable indicating whether a respondent was from a particular state or not.

The Overall Practice Transformation Index is a summary statistic that identified the percentage of PCMH activities in our provider survey that a respondent reported its practice engaged in at a high or advanced level. The independent variables included the usual number of patients seen by a provider per week; the usual number of hours worked per week; the number of years the provider worked for a practice; the practice type (e.g., solo physician practice, single-specialty practice, multispecialty practice, community health center, hospital practice, faculty practice); practice affiliations (e.g., with an integrated delivery system, an ACO, an independent provider association, or a physician-hospital organization); whether its compensation includes any kind of financial incentives; whether a practice employs any nurse practitioners or physician assistants; whether the practice employs any care managers; whether the practice has any social workers, health educators, nutritionists, pharmacists, or counselors in the practice; and how long a practice has had an electronic health record (EHR).

Pooled multistate analysis of PCMH activities associated with low spending and utilization. Finally, results of regression analyses identifying which PCMH activities and practice or provider characteristics are associated with favorable performance on various cost, utilization, and quality measures are presented in *Section 2.4.3*. Such analyses are aimed at

identifying which PCMH activities make a difference and are important to retain in subsequent iterations of the PCMH care delivery model, and which activities have no effect. (See **Section 1.2.5** for further details on the methods used for these analyses.)

1.6 Methods for Traditional Comparative Case Study

We conducted a traditional comparative case study to try to understand why some MAPCP Demonstration states were more successful than others (**Section 2.1**).⁹ For the purposes of this analysis, we considered successful states to be those that generated net savings for the Medicare program (calculated using the methodology described in **Section 1.2.7**). Our comparative case study identifies state-level demonstration design elements, experiences, and contextual factors, as well as practice-level implementation experiences, that were present in states that generated net savings and absent in states that failed to generate net savings. Other sections of this report offer additional insights into why some states achieved better performance than others, including a section that uses a newer method for conducting comparative case studies, called Qualitative Comparative Analysis (QCA)—to identify different combinations of features present or absent in states with favorable performance on utilization and expenditure measures (see **Section 1.7**).

We selected net savings to the Medicare program as our main outcome of interest for the comparative case study because it is an important measure to CMS and the public. To assess whether net savings was a reasonable proxy for overall success in the MAPCP Demonstration, we compared the eight MAPCP Demonstration states' performance on net savings to their performance on other key outcome measures presented in this report (see **Table W-1** in **Appendix W** to this report). We found that the states that generated net savings were also the states that tended to perform favorably on various Medicare claims-based measures of quality, health care utilization, and expenditures. The states that did not generate net savings for Medicare tended to perform favorably on fewer of these claims-based measures and were more likely to perform unfavorably relative to comparison practices.

After determining that states' performance on our net savings outcome measure was consistent with their performance on many other key outcome measures in this report, and therefore a reasonable way to define "success" in our traditional comparative case study, we identified factors that we thought might positively influence a state's ability to generate net savings. We reviewed the eight state chapters presented later in this report to identify factors that might plausibly influence at least one state's ability to generate net savings. Factors clustered into two groups: factors associated with *state-level demonstration design elements, experiences, and contextual factors* (because states were allowed to design nearly all aspects of their demonstrations, including the amount and structure of payments, the PCMH practice recognition requirements for practices, the technical assistance offered to practices, and so forth); and factors associated with *practice-level activities and experiences* (because practices varied on several dimensions, such as whether technical assistance generally was viewed positively in a state and the qualifications of care coordinators).

⁹ For more information on this method, see Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd Ed. Thousand Oaks, CA: SAGE Publications.

After identifying these state- and practice-level factors, we proceeded to review all eight state chapters systematically to identify whether each factor was present or absent in each state. In the state chapters that we reviewed, the presence or absence of factors was usually determined based on state teams' reviews of secondary documents, such as state progress reports, or semistructured interviews they conducted during the MAPCP Demonstration national evaluation team's three annual site visits. As part of the *practice-level activities and experiences* category of factors, we also included findings from the evaluation team's MAPCP Demonstration survey of participating providers, fielded shortly after the third year of the demonstration, which identified whether providers were performing specific activities associated with the PCMH model of care at a high level.¹⁰ After populating a matrix identifying the presence or absence of these state- and practice-level features, we circulated this matrix to state teams for review and corrections, based on their extensive knowledge of their assigned states.

The matrix summarizing our findings (*Table 2-1*) appears in *Chapter 2*, along with a description and discussion of the patterns we observed in the state- and practice-level factors that tended to be present in states that generated net savings and absent in states that failed to generate net savings.

1.7 Methods for Qualitative Comparative Analysis

QCA offers a systematic way of exploring differences in demonstration features among states and PCMH features among practices and how these differences may be related to specific outcomes using a distinctive type of analysis. In the context of the MAPCP Demonstration evaluation, QCA can be used to identify necessary or sufficient demonstration features or combinations of features found among states exhibiting favorable expenditure or utilization outcome. A necessary feature (or combination) is one that always is found among states exhibiting a specified outcome. A feature (or a combination) is considered sufficient if the specified outcome always is exhibited when the feature (or combination) is present. In other words, necessary features are always present among states or practices with the outcome, but their presence does not guarantee the outcome; sufficient features guarantee the outcome when they are present, but their absence does not preclude the outcome from occurring, as it may result from the presence of other sufficient features. Additional details regarding QCA's underlying assumptions, analytic steps, and the types of findings it produces are provided in *Appendix X*.

We conducted several analyses using QCA, using the eight MAPCP Demonstration states as the unit of analysis in accordance with standards of good practice for conducting QCA.¹¹ We related the QCA findings to the findings in the traditional comparative case study, and we used findings produced by the QCA to specify models used in the cross-state quantitative analysis as described in *Section 2.4*. We note that findings produced through QCA are complementary to findings from traditional qualitative comparative case study and quantitative analyses and answer different kinds of evaluation questions; thus, findings from QCA should be interpreted in the

¹⁰ To assess the degree to which practices were engaging in 23 activities associated with the PCMH model of care, we fielded a MAPCP Demonstration provider survey in early 2015, after all eight states were at least 3 years into their demonstrations. We created a composite variable that identified the percentage of these activities that providers reported engaging in at a high level (i.e., by selecting the most advanced answer option for a question).

¹¹ See Schneider, C. Q., & Wagemann, C. (2012). *Set-theoretic methods for the social sciences: A guide to qualitative comparative analysis*. Cambridge, MA: Cambridge University Press.

context of other qualitative and quantitative findings within the overall evaluation. Specifically, the comparative case study described in **Section 1.6** focuses on a diverse range of variables that varied across states to identify which were present or absent in states that achieved favorable performance on a broad outcome measure (i.e., whether states were able to generate net savings for the Medicare program). In contrast, the QCA focuses on fewer state-level demonstration features, uses a specific analytic technique designed for the evaluation of combinations, and evaluates the relationship between features and a larger number of outcomes.

We conducted two separate state-level QCAs, as it was not possible to study all proposed features in one QCA model because of the limited number of states participating in the demonstration. The following two research questions guided our approach:

- What combinations of state-level demonstration payment model features are found among states with favorable expenditure or utilization outcomes? (State-level analysis 1)
- What combinations of state-level nonpayment-model demonstration features are found among states with favorable expenditure or utilization outcomes? (State-level analysis 2)

We used the same expenditure and utilization outcomes for both analyses; these are described below. We selected demonstration features for both QCA models based on the MAPCP Demonstration conceptual model (**Figure 1-1**) and the availability of consistent data about the feature across all states. In addition, we selected features that would maximize variation across states and that may be actionable from a programmatic or policy perspective.

Outcome definition. For both analyses, we used outcomes related to coordination of care, health outcomes, expenditures, and health care utilization. Specifically, we used the following nine outcomes:

- Total Medicare expenditures
- Acute-care expenditures
- Outpatient expenditures
- Post-acute-care expenditures
- Specialty-care expenditures
- All-cause admissions
- 30-day unplanned readmissions
- Chronic PQI admissions
- ER visits not leading to a hospitalization

We used the state-specific impact findings for the first 12, 13, or 14 quarters of each state's demonstration reported for beneficiaries in MAPCP Demonstration practices relative to two CGs: beneficiaries in non-PCMH practices and beneficiaries in PCMH practices not participating in the demonstration. We conducted a separate QCA for each outcome and for each CG. Further details related to the outcome definition used for the QCA are provided in *Appendix X*.

Payment-model demonstration features (state-level analysis 1). Our first state-level QCA examined which payment-model demonstration features were present in states with favorable outcomes. We categorized states as either including or not including the features described below:

- *Non-practice supporting entities receive demonstration payments.* These states had a demonstration payment model that included payments to nonpractice entities (e.g., CHTs) providing support to practices in the demonstration.
- *Performance incentives included in demonstration payment model.* These states had a demonstration payment model that included financial incentives (e.g., performance-based bonus payments, shared savings payments) to practices for improved performance on cost or quality.
- *Recognition as a more advanced PCMH earns practices higher demonstration payments.* These states had a demonstration payment model that paid higher amounts to practices at higher levels of PCMH recognition (e.g., higher payments for NCQA Level 2 or 3, as opposed to Level 1).
- *Characteristics of patient determine payment amounts.* These states had a demonstration payment model that paid higher amounts to practices based on the characteristics of their patients (e.g., higher payments for older patients or patients with more chronic conditions).

Appendix X includes additional detail regarding these features.

Nonpayment-model demonstration features (State-level analysis 2). Our second analysis examined which nonpayment-model demonstration features were present in states with favorable outcomes. We categorized states as either including or not including the features described below:

- *High accountability for practices to achieve PCMH requirements.* In these states, there was an independent review/audit of participating practices to verify that PCMH requirements were being met.
- *Requirement for obtaining advanced PCMH recognition.* In these states, practices were required to achieve a minimum of Level 3 NCQA (or equivalent) PCMH recognition at some point during the demonstration.

- *Practices supported by community-based care management teams.* These states provided practices with access to a team of community-based health care professionals providing a range of care management and coordination services.

Appendix X includes additional detail regarding these features.

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CHAPTER 2

CROSS-STATE EVALUATION

This chapter presents four sets of cross-state findings. First, we use a traditional comparative case study approach to identify state- and practice-level factors that tended to be present in demonstration states that succeeded in generating net savings for the Medicare program and tended to be absent in states that did not generate savings (*Section 2.1*). Next, we identify the practice- and provider-level characteristics of providers that tended to report engaging in a large percentage of patient-centered medical home (PCMH) activities at a high level, according to our provider survey (*Section 2.2*). We then use a relatively new technique called qualitative comparative analysis (QCA) to examine whether consistent combinations of state-level characteristics were present in states in which demonstration practices generated especially low Medicare spending (*Section 2.3*). We close the chapter with a series of quantitative analyses identifying state- and practice-level characteristics associated with favorable performance on expenditures and utilization measures (*Section 2.4*).

2.1 Traditional Comparative Case Study Analysis

In this section, we present findings from a traditional comparative case study aimed at explaining different states' performance in the MAPCP Demonstration by identifying factors that were present in successful states and absent in less successful states.

As noted in *Chapter 1*, for the purpose of this analysis we chose to define “successful” states as those that generated net savings for the Medicare program, relative to our two comparison groups (CGs): PCMH and non-PCMH practices.¹ In the section that follows, we report savings relative to non-PCMH practices, because savings relative to this CG are available for all eight demonstration states. (In contrast, savings relative to PCMH comparison practices are available only for seven states, because Minnesota had no PCMH CG.) States that generated net savings were:

- Vermont (which generated \$3.37 for every \$1.00 in demonstration fees paid);
- Michigan (which generated \$2.16 in savings for every \$1.00 in demonstration fees paid);
- Pennsylvania (which generated \$2.02 for every \$1.00 in demonstration fees paid); and
- New York (which generated \$1.41 for every \$1.00 in demonstration fees paid).

¹ In states that generated net savings, demonstration practices' attributed patients generated lower total Medicare expenditures than comparison practices, even after netting out the demonstration payments that were paid to demonstration practices.

Meanwhile, four states did not generate net savings:

- North Carolina (which lost \$2.26 for every \$1.00 in demonstration fees paid);
- Rhode Island (which lost \$4.74 for every \$1.00 in demonstration fees paid);
- Maine (which lost \$5.81 for every \$1.00 in demonstration fees paid); and
- Minnesota (which lost \$35.19 for every \$1.00 in demonstration fees paid).²

See **Table 3-19** later in this report for further details on how these amounts were calculated.

As noted in **Chapter 1**, we drew on the findings in the state chapters that appear later in this report to construct a matrix (**Table 2-1**, below) that identifies state- and practice-level factors present or absent in each of the eight Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration states. Factors are identified in table rows, and states are identified in columns. Moving from left to right, states are arrayed from best to worst performance on our net savings outcome measure. The four states that generated net savings for Medicare are clustered to the left, and the four states that failed to generate net savings are clustered to the right. We used a solid black circle (●) to indicate that a factor was present in a state. We left table cells blank if a factor was absent in a state. And we used a hollow white circle (○) to indicate when a factor was partially present; for example, for the “Practices had to be recognized PCMHs when they entered the demonstration (no grace period to obtain PCMH recognition)” row, the hollow white circle (○) in the Maine column indicates that a first cohort of practices that joined the demonstration were given a 6-month grace period to achieve National Committee for Quality Assurance (NCQA) PCMH recognition, whereas practices in a second cohort were required to have PCMH recognition upon entry into the demonstration.

In the remainder of this section, we describe and discuss findings from **Table 2-1**, focusing on factors present in at least three of the four states that generated net savings and absent from at least three of the four states that failed to generate net savings. Based on our findings, these factors are suggestive of a state’s ability to generate net savings.

² We note that Minnesota’s large negative return on investment (ROI) is in part a function of how this metric is calculated—with total demonstration fees paid in Minnesota as its denominator. Had more practices opted to submit claims for demonstration payments in Minnesota, the denominator for this ROI metric would have been a much larger dollar amount, thus yielding a smaller negative ROI.

Table 2-1
Comparative case study matrix identifying factors present (or absent) in MAPCP
Demonstration states that succeeded (or failed) in generating net savings for Medicare

	Net savings for Medicare?							
	Yes				No			
	VT	MI	PA	NY	NC	RI	ME	MN
State demonstration design, experiences, and context								
PCMH initiative with payments to practices existed pre-Medicare	•	•	•	•	•	•	•	•
No new entrants allowed into the demonstration after the start date		•	•	•	•			
Practices had to be recognized PCMHs when they entered the demonstration (no grace period to obtain PCMH recognition)	•	•	•				○	•
State required practices to offer round-the-clock access to care		•		•				•
Practices only required to recertify as PCMHs every 3 years (as opposed to more frequently, such as every 12–18 months)	•		•	•		•	•	
Large number of participating practices (>100 practices)	•	•						•
Other organizations received monthly demo payments to support or supplement practices' activities (e.g., POs in Michigan, CHTs in Vermont)	•	•		•	•		•	
Care coordinator-focused technical assistance was provided	•	•			○	•	•	○
Strong state leadership throughout the demonstration	•	•		•	•	•	•	•
Broad stakeholder and physician support for demonstration	•	•	○	•	○	•	•	•
Payers participated voluntarily (were not required to participate)		•	•	•	•	•	•	
Payers' demonstration payment models incentivized consistent activities within a state	•	○	•	•		•	○	
Complementary payment and delivery system reforms underway	•	•	•	•	•	•	•	•
Payers' demonstration payment models included opportunities for practices to earn performance bonuses		•	•	•		•		
Practices' activities and experiences								
Demonstration participants received the payments they expected to receive	•	•		•		•		
Most practices met NCQA's PCMH recognition standards (as opposed to some other entity's PCMH recognition standards)	•		•	•	•	•	•	
PCMH technical assistance was viewed positively by practices	•	○	○	•	•	○	•	•
Care coordinators tended to be employed by practices (as opposed to a health system or outside entity)			•	○		•	•	○

(continued)

Table 2-1 (continued)
Comparative case study matrix identifying factors present (or absent) in MAPCP
Demonstration states that succeeded (or failed) in generating net savings for Medicare

	Net savings for Medicare?							
	Yes				No			
	VT	MI	PA	NY	NC	RI	ME	MN
Practices' activities and experiences (continued)								
Care coordinators focused on high-risk patients	●	●	●	●	●	○	●	●
Care coordinators tended to be nurses (as opposed to individuals with less clinical training)		●	●	●	●	●	○	
Practices regularly received discharge data or alerts from hospitals	○	●		○	○	○	○	○

NOTES:

States with the best-to-worst performance on our net savings outcome measure are arrayed in columns from left to right.

¹ See **Section 3.3.4** for information on the MAPCP Demonstration provider survey and the Overall Practice Transformation Index.

● = yes, factor is present in state; ○ = factor is partially present in state; empty cell = no, factor is not present in that state.

CHT = community health team; EHR = electronic health record; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PO – physician organization.

State-level factors. Two of our findings about state-level features relate to how long practices operated at a PCMH. First, we found that most states with net savings did not allow new entrants into the demonstration after the start date, whereas a majority of the states that failed to generate net savings did not have this requirement. If practices become more effective the more time they spend operating as a PCMH (i.e., by allowing them time to refine new workflows and care coordinator duties to best fit their practice needs), then it is possible that allowing new, less-experienced PCMHs practices to join throughout the demonstration period may have brought down overall average impacts in states that did not generate net savings.

We also found that all states that generated net savings required practices to be certified PCMHs when they entered the demonstration, whereas most of the states that failed to generate net savings allowed practices a grace period of 6, 12, or 18 months to meet this requirement. Because the practices in three of our four successful states were already operational PCMHs at the beginning of these states' demonstrations, they may have had a head start on developing approaches that could generate cost savings over the course of the demonstration. On the other hand, practices in states that allowed a grace period for formal PCMH recognition may have spent early months of the demonstration focused on achieving certification and developing new care processes, rather than delivering care using refined approaches from Day One.

Our other two findings about state-level features relate to demonstration payments. Specifically, we found that in most of the states that generated net savings, all demonstration payers incentivized a consistent set of practice activities, whereas in most of the states that did not generate net savings, payers incentivized different sets of activities or types of priority patients. This finding suggests that expecting practices to respond to multiple competing

incentives may be counterproductive and require practices to spread themselves too thinly across multiple objectives.

We also found that in most of the states that generated net savings, payers' demonstration payment models included opportunities for practices to earn performance bonuses. This was not the case in a majority of the states that did not generate net savings. (Bonuses were included within states' demonstration payment models, which could not exceed \$10 per Medicare beneficiary per month.)

There were several factors that had no link to a state's ability to achieve net savings. For example, requiring more frequent PCMH recertification had no association with a state's ability to generate net savings. This finding is consistent with interviews, which revealed that practice staff often felt that too-frequent recertification did not lead to improved care quality and instead forced them to reallocate time that could have otherwise been spent delivering care or refining care processes to generating documentation to prove compliance with PCMH requirements.

We also note that paying other organizations to support practices (e.g., through ongoing data analytics or staff training) or to supplement practices' care delivery activities (e.g., by offering additional care management or counseling to patients) was not associated with greater net savings. This finding could mean that these activities do not have a meaningful impact on patient care—or it could mean that these activities were provided at an insufficient dosage or intensity and may need to be enhanced in future efforts. It is also possible that these activities were targeted at too small a subset of patients to have a meaningful impact on overall Medicare spending among demonstration practices. A caveat to note is that in addition to the organizations that supported or supplemented practices' activities in five states, demonstration practices were offered technical assistance (e.g., through educational trainings and data reports) in all eight states—so no practice was truly unsupported in this demonstration.

States that required practices to offer round-the-clock access to care did not have a higher likelihood of generating net savings. We note, however, that practices in states that did not *require* this may still have been offering it voluntarily as part of their adoption of the PCMH model of care; in fact, our provider survey found that in two of the five states that did not require round-the-clock access to care, an above-average percentage of providers still reported offering this PCMH feature (reported in **Table 3-8**, in the next chapter).

Practice-level factors. We found that in most of the states that achieved net savings, demonstration participants tended to receive the payments they expected to receive. In a majority of the states that did not generate net savings, this was not always the case. In Minnesota, where the state required practices to submit claims to receive care management payments, billing was so difficult that many practices reported it was not worth the effort³; in North Carolina, a change

³ Some Minnesota payers required practices to generate and submit monthly claims for each eligible patient, rather than paying practices a monthly lump sum to cover the demonstration fees for all of a practice's attributed patients. This approach was burdensome enough that many practices chose to forego demonstration payments entirely. In interviews, Minnesota providers often told us that their billing systems were not set up to generate a claim without a face-to-face visit, and the cost to modify their billing systems exceeded their expected revenue from these demonstration payments, especially since not all payers were even requiring the submission of claims

in state vendors resulted in months-long delays in Medicaid demonstration payments; and in Maine, Medicaid changed its payment model for community care teams (CCTs)—demonstration-funded organizations supplementing practices’ activities—midway, switching from making payments for *all* of a practices’ patients to funding services for only the 5 percent that were highest-risk. In these states, not receiving the payments they expected seemed to make it more difficult for participants to plan, invest in, and implement activities designed to maintain or strengthen their adoption of the PCMH model. This was despite the fact that providers interviewed in all eight states usually reported that demonstration payments were not generous enough to cover the full cost of changes they had made (e.g., hiring new staff).

Other practice-level factors did not explain why some states generated net savings while others did not. For example, our matrix found no clear relationship between net savings and having practices employ care coordinators directly or having third parties like larger health systems embed care coordinators in practices—neither of these approaches was superior to the other.

We also found that a majority of both successful and unsuccessful states mainly used NCQA’s PCMH recognition standards, which are widely used in the United States and often considered the standard for PCMH recognition—preventing us from associating the use of NCQA with a state’s ability to generate savings or not. However, in one of the top-performing states in the demonstration, Michigan, most practices were recognized as a PCMH under Blue Cross Blue Shield (BCBS) of Michigan’s standards—suggesting that sponsors of PCMH initiatives need not rely on NCQA’s standards.⁴

Limitations. We note that our comparative case study is not exhaustive, and other unobserved or unidentified factors may also influence a state’s ability to generate net savings. In addition, several factors included in our analysis are based on findings from interviews conducted with purposive samples of a small subset of participating practices and other individuals in each state; our interviews are not necessarily representative of the experiences and views of the full universe of individuals involved in each state demonstration, although we did identify sufficiently consistent views on some topics to allow us to develop the set of factors included in our matrix. Finally, our analysis was limited to the eight states participating in the MAPCP Demonstration. It is possible that a larger number of participating states may have uncovered different findings.

Discussion. In our comparative case study, we sought to identify links between state- and practice-level factors observed in this evaluation and a state’s ability to generate net savings for the Medicare program.

We observed that states that were successful in achieving savings tended to be those where participating practices had been operating as certified PCMHs (either recognized under

to receive payments. Some payers were offering providers accountable care organization (ACO) shared savings-style contracts, which rewarded providers for reducing their total spending and thus gave them a disincentive to collect additional monthly care management fees from these payers.

⁴ MAPCP Demonstration practices technically had the option of qualifying as a PCMH using practice recognition standards developed by NCQA or by BCBS of Michigan, which is the insurer with the largest market share in that state. All of the practices opted for Blue Cross’s standards, although a few also had NCQA certification.

NCQA’s standards or some other entity’s standards) for longer periods of time. This observation was supported by the fact that successful states tended to require practices to obtain PCMH recognition as a condition of entry into the demonstration (rather than give practices 6, 12, or 18 months to meet these standards), and not allow late entrants into the demonstration after the start date. By the end of the third year of the MAPCP Demonstration, practices in states with these requirements may, on average, have been more experienced PCMHs than practices in states without these requirements.

We also found that states that generated net savings for Medicare tended to incentivize consistent practice activities across payers (even if their payment amounts varied slightly)—suggesting that incentives matter, and can be strengthened when payers band together and coordinate their payment models. We also found that offering bonuses tied to performance on quality measures was associated with a state’s ability to generate net savings—suggesting that care that meets pre-set quality standards may be less costly to provide. Finally, in states with net savings, practices tended to receive demonstration payments as they expected, compared with states that did not generate net savings, where more problems were experienced. This suggests that when payments were more predictable (even if they were mostly viewed as inadequate), practices seemed to be able to implement the PCMH model more effectively.

Requiring upfront PCMH recognition, not allowing late entrants, incentivizing consistent activities across payers’ payment models, including opportunities for performance bonuses, and providing predictable payments appear to all be important factors contributing to PCMH initiatives’ abilities to generate net savings. Sponsors and payers participating in future PCMH efforts may want to consider our findings when designing initiatives. However, given how few demonstration design features were associated with a state’s ability to generate net savings, our study suggests a need for further experimentation to identify the optimal design of a PCMH intervention.

2.2 Practice Transformation Survey Analysis

To attempt to identify the degree to which MAPCP Demonstration practices had adopted the PCMH model of care, we surveyed participating providers in early 2015, after all states had had at least 3 years of experience in the demonstration. In this section, we present results of an analysis that isolates the effects of different practice and provider characteristics on demonstration providers’ PCMH performance. This analysis uses a data set that pools all eight states’ practices’ responses to our provider survey, which asked about the degree to which respondents engaged in 23 different PCMH activities, and our practice manager survey, which asked about basic practice characteristics. Later, in **Section 3.4.4**, we present the main results of these MAPCP Demonstration practice transformation surveys, identifying average overall PCMH performance, as well as performance within specific PCMH domains and for specific PCMH activities in each demonstration state. In **Chapters 4** through **11**, we identify and discuss above-average and below-average performance for specific PCMH activities in each state and contextualize these findings by drawing on additional data sources, such as site visit interviews.

Our broadest measure of PCMH performance is the Overall Practice Transformation Index, which refers to the percentage of the 23 PCMH activities asked about in the provider survey that respondents reported having implemented at a high level (i.e., by selecting the most

advanced answer option for a question). For context, we note that the average provider survey respondent reported a high level of performance on 77.2 percent of the 23 PCMH activities in the survey.

Our analysis involved estimating regression-adjusted average Overall Practice Transformation Index scores for selected practice and provider characteristics.⁵ The results of this analysis are seen in **Table 2-2**, which shows the incremental effect on Overall Practice Transformation Index scores of having a particular characteristic while holding all other characteristics constant, compared with not having a particular characteristic. For example, when looking at the “hours worked per week by provider” characteristic variable, we see that working “≥40 hours” was associated with a regression-adjusted average Overall Practice Transformation Index score of 79.0 percent, which is 2.8 percentage points higher than the 76.2 percent score estimated for providers who worked “<40 hours” (our reference category for this variable).⁶

⁵ These regression-adjusted averages are derived from a model of the Overall Practice Transformation Index that includes as explanatory variables all of the variables identified in this table: patients seen per week; usual number of hours worked per week; years with current practice; practice type; practice affiliations; whether a provider’s compensation includes any kind of financial incentives; whether a practice has a nurse practitioner or physician assistant; whether the practice has a care manager; whether the practice has a social worker, health educator, nutritionist, pharmacist, or counselor in the practice; how long a practice has had an EHR. State-specific fixed effects were also included (not shown in table). Standard errors are adjusted to correct for clustering at the practice level because multiple physicians from the same practice provided survey responses in some cases. To estimate these regression-adjusted averages, we first estimated an ordinary least squares (OLS) regression model, where the Overall Practice Transformation Index is the dependent variable, and the variables listed earlier in this note are the independent variables. We then estimated the average of the predicted values from this model, assuming that every observation in the data, in turn, takes on the characteristic of a given answer option for each of the practice characteristics listed above. For example, for the dependent variable “number of years provider has been with current practice,” which may have four distinct values (less than 1 year, 1–5 years, 5–10 years, equal to or more than 10 years), we obtain an average for this variable that is “adjusted” under the assumption that all providers have only been with the practice for less than 1 year.

⁶ We note that the results in **Table 2-2** do not identify the *actual* average Overall Practice Transformation Index scores observed for providers who work 40 hours or more, because we held all other provider characteristics constant when calculating the estimates that appear in this table. We also note that numbers in **Table 2-2** should be compared only with other numbers within the same provider characteristic row and should not be compared with the unadjusted average shown at the top of this table. The unadjusted average is provided only for general context.

Table 2-2
Estimated Overall Practice Transformation Index¹ for different practice and provider characteristics²

Variable	Regression-adjusted average
Total number of patients provider sees per week	
Lowest quartile (reference category; n = 208)	73.7%
Second quartile (n = 177)	77.2%*
Third quartile (n = 186)	79.2%*
Highest quartile (n = 151)	79.7%*
Hours worked per week by provider	
<40 hours (reference category; n = 459)	76.2%
≥40 hours (n = 263)	79.0%*
Number of years provider has been with current practice	
<1 year (reference category; n = 54)	74.8%
1–5 years (n = 162)	76.3%
5–10 years (n = 119)	76.4%
≥10 years (n = 387)	78.2%*
Practice type ³	
Solo physician (n = 65)	81.0%*
Single-specialty (n = 299)	77.3%
Multispecialty (n = 180)	80.0%*
Community health center (n = 140)	77.8%
Hospital (n = 267)	76.1%
Faculty practice (n = 114)	76.8%
Practice affiliation ⁴	
Integrated delivery system (n = 276)	76.9%
ACO (n = 368)	76.6%
Independent provider association (n = 47)	76.7%
Physician-hospital organization (n = 194)	79.1%
Provider's compensation	
...is salary-based only, with no incentives (reference category; n = 194)	74.8%
...includes incentives (n = 528)	78.1%*
NP or PA in the practice	
No (reference category; n = 265)	78.7%
Yes (n = 457)	76.4%
Care manager in the practice	
No (reference category; n = 257)	77.3%
Yes (n = 465)	77.2%
Social worker, health educator, nutritionist, pharmacist, or counselor in practice	
No (reference category; n = 398)	77.5%
Yes (n = 324)	77.0%

(continued)

Table 2-2 (continued)
Estimated Overall Practice Transformation Index¹ for different practice and provider characteristics²

Variable	Regression-adjusted average
Practice has an EHR	
Practice has had an EHR for <3 years (reference category; n = 114)	74.4%
Practice has had an EHR for ≥3 years (n = 608)	77.8%

NOTES:

¹ Overall Practice Transformation Index refers to the percentage of PCMH activities, out of the 23 PCMH activities asked about in the provider survey, that respondents reported having implemented at a high level (i.e., by selecting the third and most advanced answer option for a question).

² 722 providers gave responses to the provider survey that could be linked based on practice ID to responses on the MAPCP Demonstration practice manager survey to create the data set used for this analysis.

³ The survey question that asked respondents to report their practice type allowed respondents to check all answer options that applied (e.g., if they were both a multispecialty practice and a community health center). Therefore, we calculated separate regression-adjusted means for each answer option.

⁴ The survey question that asked respondents to report their practice affiliations allowed respondents to check all answer options that applied (e.g., if they were affiliated with both an integrated delivery system and an ACO). Therefore, we calculated separate regression-adjusted means for each answer option.

* Indicates statistical significance with respect to reference category at the $p < 0.10$.

ACO = accountable care organization; EHR = electronic health record; ID = identification; MAPCP = Multi-Payer Advanced Primary Care Practice; NP = nurse practitioner; PA = physician's assistant, PCMH = patient-centered medical home.

Several practice or provider characteristics were associated with significantly higher average Overall Practice Transformation Index scores:

- *Seeing more patients per week.* Providers in the highest quintile of weekly patient visits had an average index that was 6 percentage points higher than providers in the lowest quintile of weekly patient visits.
- *Working more hours per week.* Providers who worked 40 or more hours per week had a regression-adjusted average index that was 2.8 percentage points higher than providers who worked fewer hours.
- *Having worked at the practice for more years.* Providers who had been in their practice for 10 or more years had an average index that was 3.4 percentage points higher than providers who had been in their practice for less than 1 year.
- *Being a solo physician.* Providers who worked in practices where they were the only practitioner had a higher average index than providers who did not work in a solo-practitioner practice, holding other practice types constant.
- *Working in a multi-specialty practice.* Providers who worked in a multispecialty group practice also had an average index that was higher than providers who did not work in a multispecialty practice, holding other practice types constant.

- *Receiving incentive-based compensation.* Providers whose salary structure included productivity or quality incentives had an average index that was 3.3 percentage points above providers who were paid a salary with no added incentives.

Meanwhile, several practice characteristics were not significantly related to providers' PCMH performance. These include:

- *Practice affiliations.* Being affiliated with an integrated delivery system, an ACO, an independent provider association, or a physician-hospital organization.
- *Composition of practice staff.* Having a nurse practitioner (NP) or physician assistant (PA), a care manager, a social worker, health educator, nutritionist, pharmacist, or behavioral health counselor in the practice.
- *Having had an EHR for more years.* Having had an EHR for at least 3 years.

Discussion. Our findings suggest that busy providers—those who saw more patients and worked more hours—were likely to adopt more aspects of the PCMH model of care. This could be because seeing more patients and working more hours generated more practice revenues, which then could be spent on the resources required to adopt the PCMH model of care. It also could be that such providers have more of an incentive to adopt the PCMH model, which typically is viewed as leading to more delegation of tasks to non-physician practice staff and all practice staff being encouraged to work more at the top of their license. In addition, it could be that adopting the PCMH model leads to additional tasks, over and above the typical clinical workload—causing practice staff in PCMH practices to spend more time in the office.

Our findings also suggest that more experienced providers and providers who have financial incentives to improve quality or meet productivity targets are exhibiting higher levels of PCMH performance. The latter is not a surprising finding, given the PCMH model focus on providing high-quality care and ensuring that patients receive overdue preventive services.

A more puzzling finding is that, when looking at practice type, two types of practices that might seem quite different from each other—solo practitioners and multispecialty group practices—are both reporting engaging in more PCMH activities than providers in other types of practices. It could be that different reasons explain why these providers report engaging in more of these activities. Multispecialty group practices, which tend to be larger practices, may be reporting engaging in more PCMH activities because of investments they have made in practice infrastructure, such as EHRs with advanced registry functions and dedicated care coordinators to engage in population management using queries from these registries. They may also be succeeding in engaging in more care coordination activities if the specialists they refer patients to work for the same practice as a patient's primary care provider (PCP) and care coordinator. Meanwhile, solo practitioners may be reporting engaging in more PCMH activities because the total number of patients they serve is small enough that they do not need elaborate practice infrastructure, such as registries and dedicated care coordinators, to assist existing staff with knowing who their sickest patients are and keeping in regular contact with them, including after hours, to manage their care.

Although being a member of an integrated delivery system, an ACO, an independent provider association, or a physician-hospital organization may make it easier or more financially advantageous to operate as a PCMH, practices with other affiliations or no affiliations appear to have been equally motivated to perform well under the PCMH model. Somewhat unexpectedly, we did not observe a relationship between PCMH performance and having an NP or PA, care manager, social worker, health educator, nutritionist, pharmacist, or behavioral health counselor in the practice. These types of staffing changes were among the major transformations that practices discussed during our site visits. One possible explanation may be that practices are only beginning to make optimal use of these types of staff in the context of the PCMH model of care, so it may be too early to observe the potential effects of employing such staff on PCMH performance.

Finally, having an EHR for a longer period of time was not associated with better PCMH performance. We note, however, that this question sought to differentiate among practices within a PCMH group that may actually be quite homogeneous. It may be that having an EHR for 3 years is no more beneficial than having one for 2 years, if a practice is able to rapidly learn how to use it properly.⁷

2.3 Qualitative Comparative Analysis Findings

In this section, we provide a summary of results from two QCAs that identified combinations of demonstration features found among states with favorable outcomes. We conducted analyses for each of nine outcomes related to coordination of care, health outcomes, expenditures, and health care utilization and defined favorable outcomes as slower growth in the expenditures or utilization among beneficiaries in MAPCP Demonstration practices relative to beneficiaries in comparison practices over the demonstration period. The methods we used to conduct these analyses are described in *Section 1.7* and *Appendix X*; detailed findings are also in *Appendix X*.

In the first QCA, we evaluated features of the demonstration's payment model, including:

- Higher payments to practices for higher levels of PCMH recognition;
- Performance incentives as part of the demonstration payment to practices;
- Part of demonstration payments made to nonpractice entities, such as a community-based support team; and
- Payments to practices adjusted based on selected patient characteristics, such as age or presence or number of chronic conditions.

In the second QCA, we evaluated non-payment model demonstration features, including:

- High accountability standards to ensure that practices achieved PCMH requirements;

⁷ Due to the small sample sizes in this survey, however, we were not able to test for differences in performance across practices that had been using EHRs for different lengths of time.

- Use of community-based care management teams; and
- Requiring Level 3 NCQA PCMH recognition (or equivalent) for participation in the demonstration.

The outcomes used in both analyses included the following:

- Total Medicare expenditures;
- Acute-care expenditures;
- Post-acute-care expenditures;
- Outpatient expenditures;
- Specialty-care expenditures;
- All-cause admissions;
- Chronic Prevention Quality Indicator (PQI) admissions;
- Unplanned readmissions; and
- ER visits.

Summary of findings. No one configuration of demonstration features was associated with favorable effects across all outcomes evaluated in either analysis. This suggests that outcomes may be influenced by different combinations of features, as opposed to some common underlying combination. Although findings from this QCA do not provide strong evidence for the effect of any specific combination of demonstration features as sufficient for favorable effects across all outcomes evaluated, they do offer specific combinations of features that we subjected to further analysis within the quantitative cross-state analyses (see **Section 2.4**). The QCA findings generally were validated in these analyses and identified a somewhat stronger relationship between the payment model features and outcomes, as compared with the non-payment model features assessed.

Although we caution against overinterpreting the importance of any single feature, we note that states with favorable outcomes often incorporated performance incentives in combination with the presence or absence of other features as part of its payment model. We also note that states with unfavorable outcomes often did not adjust payments based on patient characteristics. Among non-payment model features, having high accountability standards for ensuring that practices meet PCMH requirements through independent audits or assessments is a feature found in combination with the absence or presence of other features among states with favorable effects across outcomes. This finding is consistent with the comparative case study finding in **Section 2.2** that identified themes related to requirements for practices to have PCMH recognition at the start of the demonstration. State PCMH initiatives that use external validation of PCMH features (i.e., high accountability standards) may reflect the nature of PCMH practices

that participate in such initiatives. Such practices may already be well along the adoption and implementation continuum. Although external recognition programs, such as NCQA, offer some accountability for practices to document PCMH features, only a small proportion of practices are audited onsite through such programs.

More details on the combinations of features we identified as sufficient for favorable outcomes for each of the nine outcomes are in *Appendix Table X-7* for the first analysis (payment model features) and *Appendix Table X-8* for the second analysis (non-payment model features).

Limitations. These analyses are limited by the small number of states participating in the MAPCP Demonstration; QCA is best suited for sample sizes between 10 and 50. The small number of states led us to use a lower numeric threshold for determining sufficiency and also required us to limit the number of features that could be evaluated in any one model. This means we were not able to evaluate all of the possible ways in which the demonstration features of interest may have varied in the eight states within the same analysis.

Findings also may be limited by how we defined whether a particular demonstration feature was present or absent within a state and how we defined the outcome. We mitigated these effects by ensuring that demonstration features were clearly described, and we asked our research team members leading each state's evaluation efforts to confirm our assignments. We also used a liberal definition of "favorable outcomes," allowing states with a favorable but not statistically significant reduction relative to the CG to receive "partial credit" toward being identified as having a favorable outcome, which would be considered a null effect under a traditional statistical interpretation

2.4 Quantitative Cross-State Analyses

There are considerable differences among the eight state initiatives that could influence the outcomes of the MAPCP Demonstration. Initiatives had different ways of connecting patients to community-based resources and different payment methods and levels. In addition, states required practices to satisfy different criteria to qualify for the demonstration. Recognizing these important differences, the evaluation of the MAPCP Demonstration focused primarily on evaluating each state individually.

Because many features of the state initiative were virtually identical for all demonstration practices in a given state, the effects of different initiative features cannot be estimated in individual state analyses. The impact of initiative features, however, can be assessed using pooled data for all eight states. Although the combination of features and context for each state's initiative were unique, state initiatives can be classified using common criteria for some key features. Variation among states in the adoption of these key features was used in cross-state analyses of pooled data to estimate the impact of selected initiative features.

Practice characteristics and the degree to which practices adopted the PCMH model of care also can influence patient outcomes. Similar to initiative features, variation among practices in certain characteristics and dimensions of practice transformation was used in analyses of pooled data for all demonstration states to estimate the impact of practice-level factors on outcomes.

2.4.1 Methods

The cross-state quantitative analyses, which were limited to the Medicare population, used four key expenditure and utilization outcomes to examine the effectiveness of initiative features and practice characteristics:

- Total expenditures;
- Expenditures for acute-care hospital services;
- All-cause admission rates; and
- Rates of ER visits not leading to a hospitalization.

We examined total expenditures as a summary indicator of the demonstration impact and inpatient and ER services as important drivers of utilization and costs that the PCMH model is expected to reduce. The methodology for the cross-state quantitative analyses is described in **Section 1.2.8**. Results are reported for the first 3 years of the MAPCP Demonstration overall.

Analyses of state initiative features included data for beneficiaries attributed to MAPCP Demonstration and CG practices. The state initiative features were those used in the QCA, which are described in **Section 1.7**. Like the quantitative analyses for individual states, regression models for analyses of state initiative features using pooled data for the eight demonstration states were estimated using two distinct CGs: beneficiaries assigned to comparison PCMHs and beneficiaries assigned to comparison non-PCMHs. Analyses of practice features using data from the MAPCP Demonstration provider survey to rate practices on various dimensions of practice transformation were limited to beneficiaries in demonstration practices that responded to the survey and, therefore, did not include beneficiaries in CG practices. The practice transformation survey and methods for rating practices are described in **Section 1.5**.

Tables 2-3 and 2-4 in Section 2.4.2 report covariate-adjusted differences in the rate of growth for selected expenditure and utilization outcomes between the MAPCP Demonstration and two CGs—PCMHs and non-PCMHs—for beneficiaries stratified by state initiative features. Estimates in the rows for each state initiative feature are the difference between the covariate-adjusted difference in the rate of growth in per beneficiary per month (PBPM) total Medicare and acute-care expenditures or in the rate of all-cause admissions and ER visits not leading to hospitalization per 1,000 beneficiary quarters between demonstration and CG beneficiaries in states with the feature and the covariate-adjusted difference in growth between demonstration and CG beneficiaries in states without the feature.⁸ This difference-in-difference-in-differences (D-D-D) estimate is the key outcome of interest for the analyses of state initiative features. A *negative* value corresponds to *slower growth* in expenditures or utilization relative to the CG in initiatives with a given feature compared with initiatives without the feature, whereas a *positive*

⁸ Differences within strata in the covariate-adjusted difference in the rate of growth for the two CGs are shown in **Appendix Tables Y-1 and Y-2**.

value corresponds to *faster growth*. A negative value is considered a favorable outcome, and a positive value is considered unfavorable.

Tables 2-5 and 2-6 in **Section 2.4.3** report covariate-adjusted differences in the rate of growth for selected expenditure and utilization outcomes between demonstration beneficiaries attributed to practices that had adopted a particular PCMH capability at a high level compared with demonstration beneficiaries attributed to practices that had not adopted a particular PCMH capability at a high level. Practices were considered to have adopted a PCMH capability at a high level if they selected the third (most advanced) answer option associated with a particular PCMH activity in the provider survey. As noted above, these analyses do not include beneficiaries attributed to CG practices. Difference-in-differences (D-in-D) estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures or utilization per 1,000 beneficiary quarters for practices adopting a particular PCMH capability at a high level relative to other practices. A *negative* value corresponds to *slower growth* in expenditures or utilization and is considered a favorable outcome, whereas a *positive* value corresponds to *faster growth* and is considered an unfavorable outcome.

The following subsection presents findings from analyses of the impact of state initiative features on the utilization and expenditure outcomes, followed by findings from analyses of the impact of practice characteristics.

2.4.2 State Initiative Features

As shown in **Table 2-3**, analyses of pooled data for Medicare beneficiaries in all eight demonstration states showed statistically significant differences in impacts for four of the seven state initiative features examined, usually in analyses using the PCMH CG. For two of the four payment model features examined and one of the three non-payment model features, the analyses showed *slower growth* in one or more outcomes in states that adopted the feature. However, one payment model feature was associated with *faster growth* in one outcome.

Table 2-3
Comparison of average changes for selected utilization and expenditure outcomes for Medicare beneficiaries in all states combined, by state initiative model features

	Total Medicare expenditures (\$)		Acute-care expenditures (\$)		All-cause admissions		ER visits not leading to hospitalization	
	Vs. PCMH CG	Vs. non- PCMH CG	Vs. PCMH CG	Vs. non- PCMH CG	Vs. PCMH CG	Vs. non- PCMH CG	Vs. PCMH CG	Vs. non- PCMH CG
Payment model features incorporated in state initiative								
Payments to nonpractice supporting entities (N = 491,532)	-1.66	-12.70	9.28	-3.56	2.55	-1.28	9.71	2.55
Payments for practice performance (N = 371,322)	-15.23	-29.75*	-22.57*	-12.56	-5.66*	-2.69	-7.59	-1.22
Payments for higher medical home recognition status (N = 112,457)	-16.60	-14.47	3.00	-4.89	3.99	1.21	14.09*	5.42
Payments for patient characteristics (N = 40,982/200,419)	-43.45*	7.19	-19.89*	-1.59	-4.71	-0.36	-5.35	-0.33
Non-payment model features incorporated in state initiative								
Advanced PCMH recognition (N = 300,283/459,720)	-6.75	13.88	-9.14	4.71	-1.98	0.42	-4.38	4.20
Community-based care management (N = 198,893)	26.05	1.66	17.15	2.70	3.52	-0.05	5.93	-1.04

(continued)

Table 2-3 (continued)
Comparison of average changes for selected utilization and expenditure outcomes for Medicare beneficiaries in all states combined, by state initiative model features

	Total Medicare expenditures (\$)		Acute-care expenditures (\$)		All-cause admissions		ER visits not leading to hospitalization	
	Vs. PCMH CG	Vs. non-PCMH CG	Vs. PCMH CG	Vs. non-PCMH CG	Vs. PCMH CG	Vs. non-PCMH CG	Vs. PCMH CG	Vs. non-PCMH CG
High accountability of practices to achieve PCMH requirements (N = 415,498/574,118)	-64.06*	-23.52	-19.68*	-10.46	-1.85	-1.11	8.07	7.65*

NOTES:

- Total Medicare expenditures and acute-care expenditures are PBPM expenditures.
- All-cause admissions and ER visits not leading to hospitalization are rates per 1,000 beneficiary quarters.
- PCMH CG estimates exclude Minnesota because there were no PCMH CG practices in this state.
- Numbers in parentheses represent sample sizes of unique demonstration participants in a state initiative with a particular feature, weighted so that every state is an equal share of the sample. In cases where there are two numbers, the first number is for the PCMH estimates, which exclude Minnesota; the second number is for the non-PCMH estimates, which include Minnesota.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures or utilization among MAPCP Demonstration beneficiaries across the first 3 years of the demonstration overall. A *negative* value corresponds to *slower* growth in expenditures or utilization. A *positive* value corresponds to *faster* growth in expenditures or utilization.
- Change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the first 3 years of the MAPCP Demonstration.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Table 2-3 shows the following statistically significant differences in impacts on expenditures and utilization based on state initiative features related to payment:

- Growth in **total Medicare expenditures** relative to the non-PCMH CG was \$29.75 *slower* in initiatives with **payments for practice performance** compared with initiatives without performance-based payments. These initiatives also had *slower growth* in **acute-care expenditures** and **all-cause admissions** relative to the PCMH CG.
- Growth in **total Medicare expenditures** relative to the PCMH CG was \$43.45 *slower* in initiatives with **payments for patient characteristics** compared with initiatives without these payments. These initiatives also had *slower growth* in **acute-care expenditures** relative to the PCMH CG.
- Growth in the rate of **ER visits not leading to hospitalization** relative to the PCMH CG was *faster* in initiatives with payments for **higher medical home recognition status** compared with initiatives without these payments.

Table 2-3 also shows the following statistically significant differences in impacts on expenditures and utilization based on state initiative features not related to payment:

- Growth in **total Medicare expenditures** relative to the PCMH CG was \$64.06 *slower* in initiatives with **high standards of accountability** for meeting PCMH requirements compared to those without high standards. These initiatives also had *slower growth* in **acute-care** expenditures relative to the PCMH CG, but these initiatives had *faster growth* in **ER visits not leading to hospitalization** relative to the non-PCMH CG.

There were no significant differences associated with any of the outcomes examined relative to either CG related to **payments to nonpractice supporting entities, advanced PCMH recognition, and community-based care management**.

The QCA identified combinations of initiative features found in states with slower growth in the four expenditure and utilization outcomes included in these cross-state quantitative analyses. Separate QCAs were undertaken for payment model features and nonpayment-model features. Different combinations of features could be identified for each outcome. The results of the QCA are reported in **Section 2.3**. **Table 2-4** summarizes the combination of features identified in the QCA as occurring in state initiatives with slower rates of growth for each outcome and displays the estimated effect of the set of features on growth in each outcome. We classified states by whether their initiative incorporated the payment model features and non-payment model features identified in the QCA for a given outcome. As for analyses of individual initiative features, we compared covariate-adjusted differences in the rate of growth in the expenditure and utilization outcomes between the MAPCP Demonstration and two CGs—PCMHs and non-PCMHs—for beneficiaries stratified by whether their state’s initiative incorporated the combination of initiative features identified in the QCA.

Table 2-4
Set of initiative features occurring in initiatives with favorable outcomes for PCMH and non-PCMH CGs in qualitative comparative analyses and average changes for selected utilization and expenditure outcomes for Medicare beneficiaries in all states combined, associated with incorporation of successful initiative features, MAPCP Demonstration through December 2014

Outcome	Payment model features/change estimate		Non-payment model features/change estimate	
	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs
Total Medicare expenditures Initiative features	(Adjusts payments based on patient characteristics AND includes performance incentives) OR (Provides payments to nonpractice entities AND [offers higher payments for advanced PCMH recognition OR includes performance incentives])	(Adjusts payments based on patient characteristics AND includes performance incentives) OR (Provides payments to nonpractice entities AND [offers higher payments for advanced PCMH recognition OR includes performance incentives])	Has high accountability standards to ensure that practices achieve PCMH requirements	Has high accountability standards to ensure that practices achieve PCMH requirements AND does not require Level 3 NCQA PCMH (or equivalent) recognition
Change estimate (\$)	-61.14*	-50.45*	-64.06*	-40.61*
Acute-care expenditures Initiative features	Includes performance incentives	Includes performance incentives AND (Adjusts payments based on patient characteristics OR provides payments to nonpractice entities)	Has high accountability standards to ensure that practices achieve PCMH requirements OR Requires Level 3 NCQA PCMH (or equivalent) recognition	Has high accountability standards to ensure that practices achieve PCMH requirements AND Does not require Level 3 NCQA PCMH (or equivalent) recognition
Change estimate (\$)	-22.57*	-18.98*	-17.34	-12.98

(continued)

Table 2-4 (continued)

Set of initiative features occurring in initiatives with favorable outcomes for PCMH and non-PCMH CGs in qualitative comparative analyses and average changes for selected utilization and expenditure outcomes for Medicare beneficiaries in all states combined, associated with incorporation of successful initiative features, MAPCP Demonstration through December 2014

Outcome	Payment model features/change estimate		Non-payment model features/change estimate	
	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs
All-cause admissions Initiative feature	Includes performance incentives	Includes performance incentives AND provides payments to nonpractice entities	Has high accountability standards to ensure that practices achieve PCMH requirements OR Requires Level 3 NCQA PCMH (or equivalent) recognition	None identified
Change estimate	-5.66*	-5.49*	-1.65	N/A
ER visits not leading to hospitalization Initiative feature	(Includes performance incentives AND does not provide payments to nonpractice entities) OR (Provides payments to nonpractice entities AND does not offer higher payments for advanced PCMH recognition AND does not include performance incentives)	(Includes performance incentives AND does not provide payments to nonpractice entities) OR (Provides payments to nonpractice entities AND does not offer higher payments for advanced PCMH recognition AND does not include performance incentives)	(Does not have high accountability standards AND requires Level 3 NCQA PCMH [or equivalent] recognition) OR (Has high accountability standards AND does not have community-based care teams AND does not require Level 3 NCQA PCMH [or equivalent] recognition)	(Does not have high accountability standards AND requires Level 3 NCQA PCMH [or equivalent] recognition) OR (Has high accountability standards AND does not have community-based care teams AND does not require Level 3 NCQA PCMH [or equivalent] recognition)

(continued)

Table 2-4 (continued)

Set of initiative features occurring in initiatives with favorable outcomes for PCMH and non-PCMH CGs in qualitative comparative analyses and average changes for selected utilization and expenditure outcomes for Medicare beneficiaries in all states combined, associated with incorporation of successful initiative features, MAPCP Demonstration through December 2014

Outcome	Payment model features/change estimate		Non-payment model features/change estimate	
	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs	MAPCP Demonstration vs. CG PCMHs	MAPCP Demonstration vs. CG non-PCMHs
Change estimate	-10.89*	-10.46*	-9.71	-7.98

NOTES:

- Sets of features correspond to description in **Table 2-3**. The sets of successful payment model features and non-payment model features were identified using QCA. A set of successful non-payment model features relative to the non-PCMH CG could not be identified for all-cause admissions.
- Total Medicare expenditures and acute-care expenditures are PBPM expenditures.
- All-cause admissions and ER visits not leading to hospitalization are rates per 1,000 beneficiary quarters.
- PCMH CG estimates exclude Minnesota because there were no PCMH CG practices in this state.
- Numbers in regression models are shown in **Appendix Table Y-3**.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures or utilization among MAPCP Demonstration beneficiaries across the first 3 years of the demonstration overall. A *negative* value corresponds to *slower* growth in expenditures or utilization. A *positive* value corresponds to *faster* growth in expenditures or utilization.
- Change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by total number of beneficiaries attributed during the first 3 years of the MAPCP Demonstration.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; NCQA = National Committee for Quality Assurance; PBPM = per beneficiary per month; PCMH = patient-centered medical home; QCA = qualitative comparative analysis.

* Statistically significant at the 10 percent level.

The set of payment model features identified as occurring in successful initiatives in the QCA were strongly related to reductions in all four expenditure and utilization outcomes. The relationship was not as strong for non-payment model features. The set of non-payment model features identified in the QCA was associated with significant reductions in the two expenditure outcomes, but not with the utilization outcomes.

For payment model features, *Table 2-4* shows:

- Growth in **total Medicare expenditures** relative to the PCMH CG was \$61.14 *slower* in initiatives with the successful set of payment model features than in initiatives without this set of features.
- Growth in **total Medicare expenditures** relative to the non-PCMH CG was \$50.45 *slower* in initiatives with the successful set of payment model features than in initiatives without this set of features.
- Growth in **acute-care expenditures** relative to the PCMH and non-PCMH CGs was *slower* in initiatives with the successful set of payment model features than in initiatives without this set of features.
- Growth in the rate of **all-cause admissions** relative to the PCMH and non-PCMH CGs was *slower* in initiatives with the successful set of payment model features than in initiatives without this set of features.
- Growth in the rate of **ER visits not leading to hospitalization** relative to the PCMH and non-PCMH CGs was *slower* in initiatives with the successful set of payment model features than in initiatives without this set of features.

For non-payment model features, *Table 2-4* shows:

- Growth in **total Medicare expenditures** relative to the PCMH CG was \$64.06 *slower* in initiatives with the successful set of non-payment model features than in initiatives without this set of features.
- Growth in **total Medicare expenditures** relative to the non-PCMH CG was \$40.61 *slower* in initiatives with the successful set of non-payment model features than in initiatives without this set of features.

2.4.3 Practice Characteristics

The quantitative cross-state analyses also identified practice-level characteristics associated with effectiveness, as captured by the four Medicare expenditure and utilization measures: total Medicare expenditures, acute-care expenditures, the rate of all-cause admissions,

or the rate of ER visits not leading to hospitalization. We focus primarily on practices' adoption of specific PCMH capabilities and the four above measures.⁹

We first examined the association between high-level adoption of particular PCMH composite domains and the four measures of effectiveness in **Table 2-5**. The five PCMH domains included in this analysis are access to care, care management (defined as activities that *do not* involve working with health care providers outside of the practice), care coordination (defined as activities that *do* involve working with health care providers outside of the practice), patient engagement and self-management, and quality improvement.¹⁰ Each PCMH domain included in **Table 2-5** is a composite measure that combines several MAPCP Demonstration provider survey questions on a shared topic (e.g., all those related to offering expanded access to care, such as through same-day appointments, answering e-mails from patients, responding to urgent phone calls from patients after hours). The survey questions that feed into each of these five PCMH domains of care are identified in **Table 3-8** in **Section 3.3.4**. For this analysis, we considered a practice to have adopted a PCMH domain at a high level if its average response on the questions within a domain was at least a 7 out of 9; the third, and most advanced, answer option for each PCMH question was worth 7, 8, or 9 points out of 9.

As noted in **Section 2.4.1**, estimates in **Table 2-5** are interpreted as the difference in the rate of growth in PBPM expenditures or utilization per 1,000 beneficiary quarters for practices that had adopted activities within a particular PCMH domain at a high level relative to other demonstration practices. A *negative* value corresponds to *slower growth* in expenditures or utilization and is considered a favorable outcome, whereas a *positive* value corresponds to *faster growth* and is considered an unfavorable outcome.

⁹ We also assessed whether the impact on the four outcomes differed for practices that are federally qualified health centers (FQHCs) compared with other practices using the D-D-D model used for state initiative features (see **Appendix Table Y-1**). There were no significant differences in effects for FQHCs.

¹⁰ We did not include a sixth PCMH domain, health information technology (health IT), because the variation within this domain was not sufficient to use it in this analysis; the vast majority of providers reported adopting health IT at a high level.

Table 2-5
Differences in the rate of growth of selected expenditure and utilization measures over the first 3 years of the MAPCP Demonstration for Medicare beneficiaries attributed to demonstration practices with high-level adoption of particular PCMH domains, compared with other demonstration practices

PCMH domain	Total Medicare expenditures	Acute-care expenditures	All-cause admissions	ER visits not leading to hospitalization
Access to care (N = 230,539)	-4.90	-8.18	-1.27	-7.48*
Care management (without involvement of other providers) (N = 259,400)	-15.51	-16.03*	-0.77	0.50
Care coordination (involving other health care providers) (N = 192,813)	-1.42	-7.78	1.72	-2.65
Patient engagement and self-management (N = 132,074)	-22.33*	-14.50*	-1.41	-6.37
Quality improvement (N = 231,924)	2.39	3.94	0.50	-7.48*

NOTES:

- Total Medicare expenditures and acute-care expenditures are PBPM expenditures.
- All-cause admissions and ER visits not leading to hospitalization are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique MAPCP participants attributed to practices self-reporting a high level of adoption of the PCMH domain (i.e., reporting an average of at least 7 out of 9 on the questions included in the PCMH domain). The total number of Medicare FFS beneficiaries who participated in the demonstration for at least 3 months and were attributed to practices that responded to the MAPCP Demonstration provider survey was 302,719.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures or utilization among MAPCP Demonstration beneficiaries across the first 3 years of the demonstration overall. A *negative* value corresponds to *slower* growth in expenditures or utilization. A *positive* value corresponds to *faster* growth in expenditures or utilization.
- Change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by the total number of beneficiaries attributed during the first 3 years of the MAPCP Demonstration.

ER = emergency room; FFS = fee for service; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

The results in **Table 2-5** provide some evidence that advanced adoption of activities within particular PCMH domains is associated with reductions in Medicare utilization and expenditures. There is no statistically significant effect, however, for many combinations of PCMH domains and outcome measures. Looking at results that were statistically significant, we find that:

- Growth in **total Medicare expenditures** was \$22.33 *slower* in practices that reported high-level adoption of **patient engagement and self-management** activities, compared with other demonstration practices.

- Growth in **acute-care expenditures** was *slower* in practices that reported high-level adoption of **care management** activities, compared with other demonstration practices.
- Growth in **acute-care expenditures** was *slower* in practices that reported high-level adoption of **patient engagement and self-management** activities, as compared with other demonstration practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices that reported high-level adoption of PCMH activities associated with enhancing patient **access to care**, as compared with other demonstration practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices that reported high-level adoption of **quality improvement** activities, as compared with other demonstration practices.

To take a closer look at which practice-level PCMH characteristics are associated with favorable performance on the four key utilization and expenditure measures, we conducted a second practice-level cross-state quantitative analysis, decomposing the five PCMH composite domains into the 22 specific PCMH capabilities measured in the provider survey. Practices selecting the third (most advanced) answer option for a particular PCMH question were considered to have adopted that PCMH activity at a high level; when multiple providers from a practice answered our survey, we averaged their survey responses. Of the 22 PCMH activities asked about in our survey and included in the analysis, 11 were statistically significantly associated with at least one of the four utilization or expenditure measures. **Table 2-6** displays results for the PCMH activities associated with a statistically significant impact on at least one of the four outcome measures. Complete results for all 22 PCMH survey questions are in **Appendix Table Y-4**.

Table 2-6
Differences in the rate of growth of selected expenditure and utilization measures over the first 3 years of the MAPCP Demonstration for Medicare beneficiaries attributed to demonstration practices with high-level adoption of particular PCMH activities, compared with other demonstration practices
(only statistically significant PCMH activities shown)

PCMH activity asked about in MAPCP Demonstration provider survey ...and third and most advanced answer option	Total Medicare expenditures (\$)	Acute-care expenditures (\$)	All-cause admissions	ER visits not leading to hospitalization
4. Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe. (N = 219,862)	18.90	1.35	0.51	-7.82*

(continued)

Table 2-6 (continued)
Differences in the rate of growth of selected expenditure and utilization measures over the first 3 years of the MAPCP Demonstration for Medicare beneficiaries attributed to demonstration practices with high-level adoption of particular PCMH activities, compared with other demonstration practices
(only statistically significant PCMH activities shown)

PCMH activity asked about in MAPCP Demonstration provider survey ...and third and most advanced answer option	Total Medicare expenditures (\$)	Acute-care expenditures (\$)	All-cause admissions	ER visits not leading to hospitalization
6. Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients. (N = 195,454)	-20.28	-12.90*	-1.82	-4.69
8. Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits. (N = 288,051)	24.99*	6.08	4.18*	10.50
10. Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management. (N = 262,793)	-0.49	-0.70	-2.74	-10.40*
11. Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these. (N = 255,713)	-52.30*	-35.11*	-5.58*	-6.85
12. Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care. (N = 139,814)	-19.42	-11.58*	-1.03	-5.41

(continued)

Table 2-6 (continued)
Differences in the rate of growth of selected expenditure and utilization measures over the first 3 years of the MAPCP Demonstration for Medicare beneficiaries attributed to demonstration practices with high-level adoption of particular PCMH activities, compared with other demonstration practices
(only statistically significant PCMH activities shown)

PCMH activity asked about in MAPCP Demonstration provider survey ...and third and most advanced answer option	Total Medicare expenditures (\$)	Acute-care expenditures (\$)	All-cause admissions	ER visits not leading to hospitalization
14. Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions. (N = 145,774)	-12.93	-12.40*	-3.47*	-8.67*
17. Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols. (N = 137,568)	-7.68	-5.53	-1.68	-9.91*
19. Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary. (N = 154,769)	29.47*	11.71	1.06	-2.13
22. Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals. (N = 246,132)	7.63	2.22	0.58	-10.68*

NOTES:

- Total Medicare expenditures and acute-care expenditures are PBPM expenditures.
- All-cause admissions and ER visits not leading to hospitalization are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique MAPCP Demonstration participants attributed to practices self-reporting high-level adoption of this PCMH activity (i.e., reporting at least 7 out of 9 on the question). The total number of Medicare FFS beneficiaries who participated in the demonstration for at least 3 months and were attributed to practices that responded to the MAPCP Demonstration provider survey was 302,719.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures or utilization among MAPCP Demonstration beneficiaries across the first 3 years of the demonstration overall. A *negative* value corresponds to *slower* growth in expenditures or utilization. A *positive* value corresponds to *faster* growth in expenditures or utilization.
- Change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the first 3 years of the MAPCP Demonstration.

ER = emergency room; FFS = fee for service; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Table 2-6 shows the following statistically significant associations between PCMH activities and the key utilization and expenditure measures:

- Growth in **total Medicare expenditures** was \$24.99 *faster* in practices that regularly **reviewed their patients' medications**, compared with other practices. These practices also had *faster* growth in **all-cause admissions**.
- Growth in **total Medicare expenditures** was \$52.30 *slower* in practices that emphasized **preventive screening**, compared with other practices. These practices also had *slower* growth in **acute-care expenditures** and **all-cause admissions**, compared with other practices.
- Growth in **total Medicare expenditures** was \$29.47 *faster* in practices that **referred or communicated information to patients in need of behavioral health care support**.
- Growth in **acute-care expenditures** was *slower* in practices with high-level use of **registries for high-risk patients**, compared to other practices.
- Growth in **acute-care expenditures** was *slower* in practices that **incorporated patient preferences into care planning** at a high level, compared with other practices.
- Growth in **acute-care expenditures, all-cause admissions, and ER visits not leading to hospitalization** was *slower* in practices with advanced capabilities related to providing **patient self-management support for chronic conditions**, compared with other practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices that reported high-level adoption of **alternate types of patient contact** (e.g., e-mail, text messages, Web portals), compared with other demonstration practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices that engaged in high-level **clinical management for complex patients**, compared with other practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices with a high level of adoption of **formalized practice agreement and referral protocols with commonly referred-to practices**, compared with other practices.
- Growth in the rate of **ER visits not leading to hospitalization** was *slower* in practices that engaged in formal **quality improvement activities** at a high level (e.g., using the plan-do-study-act approach to making incremental changes to practice processes), compared with other practices.

2.4.4 Discussion

Impacts on key expenditure and utilization outcomes—including total expenditures, acute-care expenditures, all-cause admissions, and ER visits not leading to hospitalization—varied among the demonstration states (see **Section 3**), so we examined whether features of state initiatives were associated with differences in impacts. These analyses suggest that payment model features were more strongly associated with the effectiveness of initiatives than the other features examined. Incorporating pay-for-performance provisions in practice payments and adjusting payments for patient characteristics were both associated with greater reductions in growth of total Medicare expenditures. There was less evidence that differences in initiative effectiveness were associated with features not related to payment. Only one of the non-payment-related features, having high standards of accountability for meeting PCMH requirements, was associated with slower growth in any of the outcomes, but it also was associated with faster growth in the ER visit rate.

These claims analyses also validate the findings from the QCA reported in **Section 2.3**. The combinations of features identified as successful in the QCA were even more strongly associated with initiative effectiveness than the individual features. In particular, the successful combinations of payment model features were associated with significantly slower growth in all four outcomes and relative to both PCMH and non-PCMH CGs. Although the features identified in the QCA were strong predictors of expenditure and utilization reductions in these claims analyses, it may be difficult to translate these findings into policy and program design decisions because the set of initiative features that occurred in initiatives with slower growth differed depending on the outcome. In addition, the combination of features identified as successful may not be intuitively meaningful to policymakers, particularly those in which one component is the absence of a particular feature.

Most of the evidence of slower growth associated with initiative model features came from analyses using the PCMH CG. Although we hypothesized that there would be larger reductions in expenditures and utilization in comparisons with non-PCMH practices than with PCMH practices in the D-in-D models used in most of our evaluation analyses, this hypothesis does not necessarily extend to these D-D-D analyses. In the D-D-D analyses, the estimated effect is based on the relative size of the difference between the demonstration and the CG, depending on whether the state has a given initiative feature. It is not evident *a priori* that the size of this relative difference should be larger in comparisons with non-PCMH practices than with PCMH. Nonetheless, within the group of state initiatives with the successful features, we found significant reductions relative to the PCMH CG for all outcomes, but did not consistently find significant reductions relative to the non-PCMH CG (see **Appendix Tables Y-1** and **Y-2**).¹¹

¹¹ Relative to the non-PCMH CG, we found significantly slower growth in total Medicare expenditures in states that had the set of successful non-payment initiative features identified in the QCA and significantly slower growth in the all-cause admission rate in states that had the set of successful payment initiative features. For the other outcomes where the initiatives with the set of successful payment model features had significantly slower growth in non-PCMH comparisons, differences between the MAPCP Demonstration group and the CG are not statistically significant. The D-D-D estimate is statistically significant and negative because the MAPCP Demonstration was associated with significantly faster growth relative to the non-PCMH CG within the set of initiatives without the successful combination of features (see **Appendix Table Y-2**).

These within-strata findings are analogous to results from D-in-D models where we expect larger reductions relative to the non-PCMH CG.

A possible explanation for the absence of significant reductions relative to the non-PCMH CG is limitations in our method for identifying a practice's PCMH status, which was based on NCQA recognition. This may be an imperfect indicator of the degree to which a practice has the characteristics of a PCMH, because not all practices choose to go through the NCQA recognition process. In addition, in some states, primary care practice transformation was pervasive even outside the MAPCP Demonstration, and the non-PCMH practices also may have been affected by this.

We also examined the association between practice characteristics and effectiveness in reducing growth in the four key expenditure and utilization outcomes. Overall, the results of our analyses are consistent with our expectations: high-level adoption of many core aspects of the PCMH model was associated with slower growth in at least some of the outcomes examined.

The only PCMH domain to have a statistically significant effect on total Medicare expenditures was patient engagement and self-management. When we decomposed this PCMH domain into its component activities, we found that two of the PCMH activities were associated with reductions in acute-care expenditures: (1) identifying and incorporating patient preferences and values into care planning; and (2) offering patient self-management support for chronic conditions through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem solving. It is worth noting that patient engagement was the domain that MAPCP Demonstration states reported engaging in at the lowest rate: On average, practices reported performing only 57 percent of the activities in this domain at a high level. Michigan, one of the four states that generated net savings in this demonstration, had markedly higher performance on this domain of care than the other MAPCP Demonstration states (see *Table 3.6*).

Although four of the five PCMH domains were associated with favorable effects on at least one of the utilization or expenditure measures, the exception was the care coordination domain, which required working with health care professionals outside of the practice. Care coordination may be hard to accomplish with external entities that did not participate in the demonstration and did not have financial incentives to share information or improve communication about referred patients. It was the PCMH domain with the second lowest percentage of activities adopted at a high level, with only 68 percent of the activities in this domain performed at a high level in the average MAPCP Demonstration state. It is possible that high-level care coordination, with regular and interactive communication and record sharing with all of a patient's specialist and hospital providers, had not been realized by MAPCP Demonstration practices, and the version of care coordination taking place is not yet having a meaningful impact on reducing unnecessary utilization or expenditures.

Looking at the 22 PCMH activities separately, only preventive screenings were associated with lower total Medicare expenditures. Medicare beneficiaries in practices that delivered these screenings at visits specifically scheduled for this purpose proactively identified needed preventive services at other visits, and used registries or clinical decision support tools to identify patients overdue for these screenings had \$52.30 lower total Medicare spending per

month compared with practices not engaging in these activities. Again, Michigan reported engaging in this activity at the highest rate among MAPCP Demonstration states, although Maine and New York providers also engaged in this activity at a statistically significantly higher rate than the average MAPCP Demonstration state.

The finding that preventive screenings are associated with large reductions in total Medicare expenditures is noteworthy because the research literature on preventive care largely finds little evidence of savings (Cohen & Neumann, 2009). One possible explanation for the large savings associated with preventive screenings found in our analyses is that it is acting as a proxy for an unobserved practice characteristic associated with preventive screening delivery. A recent study found that family physicians who practice more comprehensive care (by offering more types of services) incur lower Medicare expenditures (Bazemore, Petterson, Peterson, & Phillips, 2015). Primary care practices in the MAPCP Demonstration that emphasize preventive services might also offer a very comprehensive set of services, and it may be this factor, rather than the screenings themselves, that is driving the result in our analyses. The provider survey did not ask about the range of services offered, so this possible explanation could not be explored further.

Although conducting preventive screenings was the only individual PCMH activity associated with significantly lower total Medicare spending, several other activities were associated with reductions in at least one of the utilization and expenditure measures. These promising activities were as follows: using alternate types of patient contact, having formalized practice agreements and referral protocols, using registries to track and guide the care delivered to high-risk patients systematically, identifying complex patients in need of care management, engaging patients with chronic conditions by providing goal-setting and action planning, identifying and incorporating patient preferences into care planning, and engaging in formal quality improvement activities. Given the large number of activities that practices are typically asked to adopt as part of the PCMH model of care, these findings may be helpful for practices or initiative sponsors seeking to understand which components of the PCMH model offer the largest “bang for the buck” and may, therefore, be worth prioritizing.

Although this analysis identified many PCMH activities associated with reductions in utilization and expenditures, we also identified some PCMH activities associated with increases. These activities included regular review of medications and referral of patients to behavioral health therapists. Nearly all respondents to the provider survey indicated a high level of adoption of medication review; 98 percent of the beneficiaries included in this analysis were attributed to practices that had high-level adoption of medication reviews. The lack of variation in this practice feature raises concerns that the small number of beneficiaries in practices that did not report engaging in this activity at a high level may be unusual in ways that we were unable to control for in the analysis, or that these practices may differ in ways that our analyses did not measure.

Although we find a significant increase in total Medicare expenditures for patients in practices that regularly referred patients to behavioral health therapists, these may be short-run increases reflecting improved access to and greater use of behavioral health care services. It is possible, however, that addressing behavior health problems will reduce costs in the longer run. Investments in behavioral health care may require several years to yield dividends, as patients

gradually learn to accept a behavioral health condition, find a psychotropic medication that works for them, and adopt coping strategies that enable them to better deal with life, self-manage other physical conditions, and stay out of the hospital.

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CHAPTER 3

CROSS-STATE FINDINGS

3.1 Initiative Features

This section presents a snapshot of key features of the eight state initiatives and identifies the differences and commonalities among them. Differences in the characteristics of state initiatives—such as the length of time each has been in operation, requirements for practices, the extent of community-based resources, and structure of the payment system—are of critical importance in understanding the overall changes observed during the MAPCP Demonstration. This section creates a context for understanding the findings from the overall evaluation.

3.1.1 State Environment

All state initiatives had a history of collaboration, but these previous collaborations differed in their primary partners. Before applying to participate in the MAPCP Demonstration, six states (Maine, Minnesota, New York, Pennsylvania, Rhode Island, and Vermont) already had multi-payer patient-centered medical home (PCMH) initiatives, building on multiyear histories of broad-based collaborative efforts with payers, providers, and other stakeholders. Michigan had a similar history of collaboration through the multi-stakeholder Michigan Primary Care Consortium, but did not have a multi-payer initiative before the MAPCP Demonstration. North Carolina had a long history of collaboration to advance care coordination between the state and providers for Medicaid beneficiaries and, at the time of application, expanded that partnership to include commercial payers.

All state initiatives leveraged funding from sources other than participating payers to fund portions of their PCMH initiatives or other programs complementing their PCMH initiatives. For example, Vermont used the proceeds from a tax on medical claims to support its health information exchange (HIE) and clinical registry. All state initiatives also participated in other relevant federal initiatives and pursued new opportunities to leverage federal resources to improve their delivery systems. For example, six of eight states (all but Minnesota and Pennsylvania) had at least one health home state plan amendment in effect. *Table 3-1* details these federal initiatives for each state.

Table 3-1
Demonstration state participation in federal initiatives to improve delivery of care as of
December 31, 2014

State	New York	Rhode Island	Vermont	North Carolina	Minnesota	Maine	Michigan	Pennsylvania
SIM Round 1	Yes, Model Pretest	Yes, Model Design	Yes, Model Test	No	Yes, Model Test	Yes, Model Test	Yes, Model Design	Yes, Model Design
SIM Round 2	Yes, Model Test	Yes, Model Test	N/A	No	N/A	N/A	Yes, Model Test	Yes, Model Design
Financial Alignment Initiative	Yes, MOU signed	Yes	No	No	Yes, MOU signed	No	Yes, MOU signed	No
Health Homes (§2703)	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Medicare 646	No	No	No	Yes	Yes	No	No	No

NOTES:

For more information about these federal initiatives, please see the following:

- SIM Initiative, <http://innovation.cms.gov/initiatives/state-innovations/>
- Financial Alignment Initiative, <http://innovation.cms.gov/initiatives/Financial-Alignment/>
- Health Homes (§2703), <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Long-Term-Services-and-Supports/Integrating-Care/Health-Homes/Health-Homes.html>
- Medicare 646, <http://innovation.cms.gov/initiatives/Medicare-Health-Care-Quality/>

MOU = memorandum of understanding; N/A = not applicable; SIM = State Innovation Models.

3.1.2 Demonstration Scope

Table 3-2 shows participation in the MAPCP Demonstration as of the end of the evaluation period (December 31, 2014). As of that date, the eight states reported a total of 3,042,937 all-payer participants in the MAPCP Demonstration, an increase of 817,400 all-payer participants (37%) over the numbers reported at the end of Year One. According to the states' applications, 4,052,346 individuals were estimated to be eligible to participate in the state initiatives. As a whole, the initiatives met 75 percent of the all-payer projection by December 31, 2014. The size of each state initiative varied widely. Across the entire demonstration period, Michigan's PCMH initiative always had the most participants (1,175,586 as of December 31, 2014), and Rhode Island always had the fewest (65,174 as of December 31, 2014).

CMS attributed 724,775 Medicare fee-for-service (FFS) beneficiaries to participating practices as of December 31, 2014—an increase of 316,768 Medicare beneficiaries (78%) since the end of Year One. According to the states' applications, 783,621 Medicare beneficiaries were estimated to be eligible to participate in the state initiatives. The state initiatives met 92 percent of the Medicare projection by December 31, 2014. The number of Medicaid beneficiaries was 1,483,433 at the end of the evaluation period.

Table 3-2
MAPCP Demonstration scope in each state as of December 31, 2014

State	Geographic scope	Participants			Practices ⁵	Providers ⁵	Payers (including Medicare) ²
		All-payer ²	Medicare FFS beneficiaries ³	Medicaid beneficiaries ⁴			
New York	Regional (4 counties)	93,262	29,093	47,271	37	192	9
Rhode Island	Statewide	65,174	13,636	27,402	16	104	5
Vermont	Statewide	281,880	84,151	127,319	125	645	5
North Carolina	Regional (7 counties)	83,353	33,393	—	40	161	4
Minnesota ¹	Statewide	1,050,003	159,435	685,104	213	2,732	N/A
Maine	Statewide	140,082	59,524	73,124	70	508	6
Michigan	Statewide	1,175,586	299,907	456,877	312	1,709	5
Pennsylvania	Regional (2 regions)	153,597	41,636	45,925	36	316	5
Total	—	3,042,937	724,775	1,483,433	849	6,367	N/A

NOTES:

- The number of all-payer participants is the point-in-time number reported by the states as of December 31, 2014.
- Demonstration practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are providers associated with those practices.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating demonstration practices for at least 3 months.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating demonstration practices for at least 3 months.
- Because of a change in their Medicaid management information system in 2013, North Carolina was able to provide Medicaid enrollment and claims data only through March 2013.

¹ Minnesota does not report individual commercial insurance plan participation in its quarterly reports to CMS.

ARC = Actuarial Research Corporation; CMS = Centers for Medicare & Medicaid Services; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; — = data not available; N/A = not applicable.

SOURCES: ²Quarterly State Progress Reports to CMS; ³ARC MAPCP Demonstration Beneficiary Assignment File; ⁴State Medicaid enrollment and claims files;

⁵ARC MAPCP Demonstration Provider File.

Actual participation was less than projected for several reasons, including an overestimation of the number of Medicare beneficiaries eligible for the demonstration; less participation than anticipated among commercial payers; changes in patient attribution and assignment algorithms; and practices' failure to meet participation requirements or their departure from the demonstration.

The numbers of participating practices and providers varied greatly by state. As of December 31, 2014, Michigan had the largest number of practices, and Minnesota had the largest number of providers. Throughout the demonstration, Rhode Island always had the smallest numbers of practices and providers.

With the exception of Pennsylvania, payer participation was relatively steady throughout the MAPCP Demonstration evaluation period. North Carolina reported the fewest number of payers (four), and New York reported the largest number (nine). Payer participation in states reporting individual commercial payers did not change at all in three states (New York, Rhode Island, and Vermont). Maine, Michigan, and North Carolina each added one payer after launch. Pennsylvania reported the greatest amount of change, with four payers exiting the demonstration during the 3 years.

The MAPCP Demonstration was set to end before December 31, 2014 in five of the eight states (June 30, 2014, for New York, Rhode Island, and Vermont; September 30, 2014, for Minnesota and North Carolina). Medicare and the other participating payers in these states agreed to extend their participation through the end of 2014. In September 2014, CMS offered to extend the demonstration for 2 additional years, through December 31, 2016, for the six state initiatives using shared support teams to help practices coordinate care (Maine, Michigan, New York, North Carolina, Rhode Island, and Vermont). CMS elected to extend these six demonstrations because community-based entities that provided care coordination services in these states were not eligible to use Medicare's Chronic Care Management code, which became effective on January 1, 2015, to bill independently for care coordination services. If the revenue stream were disrupted, CMS was concerned that valuable infrastructure that had been put in place could break down before final evaluation results from the demonstration were available. Subsequently, North Carolina's commercial payers chose to focus their PCMH efforts on single-payer initiatives and declined to extend their participation in the state's multi-payer initiative beyond December 2014. As a result, the MAPCP Demonstration was terminated in North Carolina as planned. Interviewees suggested various reasons as to why the commercial plans may have declined to extend their participation in North Carolina's multi-payer initiative, ranging from budget considerations (e.g., plans may not have budgeted payments to the networks for 2015–2016) to the changing market forces in the state (e.g., the rise of accountable care organizations [ACOs], which could provide Community Care of North Carolina [CCNC]-like services for their members). Minnesota and Pennsylvania practices were eligible to use the new codes to maintain an ongoing source of revenue to support care management and other infrastructure, so they were not offered the opportunity to extend the demonstration. Thus, the MAPCP Demonstration ended on December 31, 2014, as planned, in these three states; the remaining five continued through the end of 2016.

3.1.3 Practice Expectations

As previously reported, all state initiatives established standards and performance requirements that practices had to meet and maintain to participate in the demonstration and receive payment (qualification standards). These expectations assured payers that practices undertook the activities necessary to transform their practices to justify the enhanced payment. This section identifies and examines key components of states' practice expectations.

PCMH recognition standards were the core requirements for practices to join the MAPCP Demonstration. All eight state initiatives established such standards. No state altered the base of its standards after the first year of the demonstration. Six state initiatives (Maine, New York, North Carolina, Pennsylvania, Rhode Island, and Vermont) based their standards largely on the National Committee for Quality Assurance (NCQA) PCMH recognition standards; these six states, however, also required practices to meet additional state-specific criteria. For example, in addition to attaining NCQA recognition, Maine required its practices to meet its initiative's 10 Core Expectations. Practices in North Carolina also were required to meet standards set through the Blue Cross and Blue Shield of North Carolina Blue Quality Physician Program (BQPP), which also required NCQA PCMH recognition.

Two states (Michigan and Minnesota) did not require practices to achieve NCQA recognition as a condition of participation. Michigan allowed practices to choose to obtain recognition from NCQA or through the Blue Cross Blue Shield (BCBS) of Michigan Physician Group Incentive Program (PGIP). Minnesota developed its own state Health Care Homes (HCH) standards and, since July 2010, has administered its own process for practices seeking recognition.

Although the expectations established by the eight state initiatives varied, states generally established requirements addressing three aspects of performance: practice transformation, quality improvement, and data reporting. Practice expectations are summarized in greater depth in *Table 3-3* in *Section 3.3.1*.

- Four states (Maine, Michigan, Pennsylvania, and Rhode Island) required practices to participate in activities designed to help them transform their practices, including learning collaboratives, practice coaching, webinars, and phone calls.
- Five states (Michigan, Minnesota, New York, North Carolina, and Vermont) required practices to take specific actions to improve quality, including the establishment of quality improvement teams, development of quality improvement plans, and the development and adoption of evidence-based care protocols.
- Seven states (Maine, Michigan, Minnesota, New York, Pennsylvania, Rhode Island, and Vermont) expected participating practices to report information to the state initiatives. Most commonly, practices were required to report on state-specified clinical, quality, or performance-based metrics.

Two states (Pennsylvania and Michigan) modified practice expectations before launch. Specifically, Pennsylvania introduced a new requirement that practices complete a Practice

Performance Assessment Framework. Michigan modified its expectations for care management staffing ratios. Four states (Maine, North Carolina, Pennsylvania, and Rhode Island) modified their practice expectations during the demonstration's evaluation period. Maine required practices to collaborate with the newly created community care teams (CCTs) in January 2012. In 2013, North Carolina no longer required practices ineligible for the additional payment for receiving BQPP recognition to meet all of the additional BQPP requirements. Also in July 2013, Pennsylvania updated the aforementioned practice assessment to align more closely with shared savings measures. Finally, Rhode Island modified its requirements for practices in April 2013, with the implementation of a new common contract, called the Developmental Contract, for all participating practices.

3.1.4 Support to Practices

The eight state initiatives implemented varying payment methodologies to compensate practices for the initial and ongoing costs of meeting practice transformation requirements and functioning as a PCMH. These payments allowed practices to invest in changes to transform the way in which they delivered care to their patients. The most common payment approach across the eight states was the introduction of per member per month (PMPM) payments made in addition to existing payments for services. CMS used a per beneficiary per month methodology for Medicare FFS beneficiaries in each state, although Minnesota practices were required to submit claims to receive the payment.

Some payers (including some commercial payers in Michigan, Minnesota, New York, and North Carolina and Medicaid FFS in New York) paid providers using other means, such as enhanced FFS rates for certain primary care visits. In most cases, these alternative payments were equivalent to or higher than the PMPM rates. In four states, one or more participating payers stratified payments to practices based on patient complexity (Minnesota and North Carolina), NCQA PCMH recognition year or level (North Carolina and Vermont), or age (Pennsylvania). Four states (Michigan, Pennsylvania, New York, and Rhode Island) also incorporated pay-for-performance into their payment methodologies. For example, Pennsylvania's payment methodology included a shared savings arrangement in which PMPM payments were reduced annually as practices became eligible for a greater share of savings. Four states (Maine, New York, North Carolina, and Rhode Island) modified their payment models during the demonstration period, described in detail in *Section 3.2.1*.

Since the start of the demonstration, six state initiatives (Maine, Michigan, New York, North Carolina, Rhode Island, and Vermont) used shared support teams to some extent to support participating practices and patients. Maine had CCTs; Michigan had physician organizations (POs); New York had Pods; North Carolina had networks; and Vermont had community health teams (CHTs). In Rhode Island, support teams initially were limited to the care management services provided by South County Hospital to a few practices. Vermont also had SASH teams to support Medicare beneficiaries mostly living in community housing. Although these organizations vary in structure, staffing, and payment, all were intended to augment the care coordination provided by practices and improve links among primary care practices and community services. In some states, these organizations are also intended to support other activities in practices, such as quality improvement.

In addition to providing financial support to practices and shared support teams, every state initiative offered technical assistance to practices, including learning collaboratives, in-person meetings, practice coaching, and distance learning such as webinars or conference calls.

Throughout the MAPCP Demonstration, some MAPCP Demonstration participants had access to the MAPCP Demonstration Web Portal that allowed practices to receive—quarterly—three sets of Medicare-specific reports and files: practice-level feedback reports, beneficiary utilization files, and beneficiary assignment files. Practice-level feedback reports showed summary information on key Medicare FFS expenditures, utilization, and quality of care measures. The feedback reports detailed changes over time in the key measures, and they permitted benchmarking to other participating practices within the state. The goal of the feedback reports was to provide participating practices with timely interim feedback on their performance for quality improvement purposes. Beneficiary utilization files provided practices with beneficiary-level information on health status and utilization information to assist with practice efforts to improve risk assessment and care management. Beneficiary assignment files supplied the names of Medicare FFS beneficiaries assigned to participating practices each quarter, as well as some demographic information.

Practices in five of the eight participating states (Maine, New York, Pennsylvania, Rhode Island, and Vermont) had access to the MAPCP Demonstration Web Portal.¹ Users began getting credentials for the portal in April 2012. Practice feedback reports were distributed to participating practices in New York, Rhode Island, and Vermont starting in July 2012, and to Maine and Pennsylvania practices starting in October 2012. States had primary responsibility for encouraging organizations (e.g., CHTs, CCTs, Pods) and practice staff to access the files and for providing training on using the portal and information in the files.

Some state initiatives and participating payers made additional data available to MAPCP Demonstration practices, either aggregated by the state initiative (Maine, Minnesota, Pennsylvania, and Vermont) or from individual payers (see *Chapters 4* through *11* for more details). Data came from various sources, including administrative claims, all-payer claims databases, HIEs, and clinical registries. Generally, data were aggregated into reports that were provided on a quarterly or semiannual basis. For example, the Maine Health Management Coalition, Michigan Data Collaborative, and CCNC Informatics Center all developed new and refined data reports using cost and utilization data from participating commercial payers during the evaluation period.

3.2 Implementation

This section is based on primary data gathered from site visits to the eight demonstration states conducted throughout the evaluation. It synthesizes key themes and findings from the implementation experience of state officials, payers, and providers across the states and highlights similarities and differences among the states.

¹ Two states (North Carolina and Michigan) distributed similar information to practices through their own data systems, so they did not use the MAPCP Demonstration Web Portal. Minnesota also did not use the MAPCP Demonstration Web Portal because the state did not use a process for assigning Medicare beneficiaries to practices, as was the practice in the other states.

3.2.1 Major Changes During the Evaluation Period

The most common structural changes made to state initiatives during the evaluation period are related to either payment or governance. As discussed in **Section 3.1.4**, payers in four states modified their payment methodologies during the evaluation period; however, these changes did not affect Medicare's payments. In 2012, stakeholders in New York agreed to earmark \$0.50 of the practices' \$7.00 PMPM payments to introduce a pay-for-performance component to their payment methodology. Rhode Island introduced a new provider contract in 2012 and again in 2013; under both contracts, providers became eligible to receive performance-based incentive payments in addition to their base PMPM payments. In the other two states, payment changes were limited to individual payers. In Maine, the implementation of a health home program required MaineCare to change its payments to CCTs so that payments were made only for individuals receiving services, rather than on a PMPM basis. The opposite occurred in North Carolina, where the State Employee Health Plan modified its contract so that it made monthly population-based payments to the regional community care networks, rather than an annual lump-sum payment intended to cover services for only their high-risk members.

Michigan, New York, and Rhode Island modified their governance models to streamline decision-making processes. Program leaders in Michigan established a Stewardship and Performance Group made up of thought leaders charged with assessing the program and developing recommendations for its improvement. New York created an Executive Committee within its larger Governance Committee, which allowed participating providers and plans to address issues of concern more nimbly, compared with previous years; recommendations from the Executive Committee still required approval by the Governance Committee. Finally, toward the end of the demonstration's evaluation period, Rhode Island transferred governance to the Care Transformation Collaborative of Rhode Island (CTC), a newly incorporated nonprofit organization created to carry on and expand the work started by the Chronic Care Sustainability Initiative (CSI). CTC maintained much of the existing CSI committee structure within its board.

Over the course of the MAPCP Demonstration evaluation period, most changes made to state initiatives were refinements to the models rather than large structural changes. Program leaders in each state monitored early performance and tailored practice supports and technical assistance opportunities to identify and spread best practices, including strategies to identify and engage high-risk, high-cost individuals who would benefit most from enhanced care management services. As a result of this work, stakeholders in several states increasingly worked with providers to strengthen the ways in which primary care providers (PCPs) and shared support teams could meet individuals' behavioral health and palliative care needs. States and participating payers also worked to refine and augment data systems to support practices in identifying at-risk individuals. For example, Michigan launched a pilot program that gave care managers access to real-time admission, discharge, and transfer (ADT) notifications.

3.2.2 Major Implementation Issues

Throughout the three rounds of site visits, the most commonly reported implementation issues pertained to either data or payment. Practices' frustration with the timeliness and quality of claims data, which states and payers provided to practices as ways to monitor performance and identify gaps in care, persisted throughout the evaluation period. State officials noted that interoperability issues between electronic health records (EHRs) limited data sharing across

providers in many states. Further, interviewees also noted that providers did not fully utilize HIEs (e.g., Rhode Island's CurrentCare) or other claims and clinical data repositories (e.g., Vermont's DocSite, MAPCP Demonstration Web Portal). Reasons given for providers' low utilization of these data systems included concerns that data were unreliable or incomplete and that providers found the systems difficult or onerous to use.

In the initiatives' third years, interviewees in six states (all but New York and Rhode Island) were still reporting that participating practices or the shared support teams (e.g., CHTs) either received payments for fewer participants than expected or that the PMPM payments were insufficient to sustain practice transformation. This was particularly true in Michigan and Minnesota, where some payers required practices to submit claims for care management services rather than paying a PMPM amount. In some cases, data and payment issues were related. For example, practices and POs in Michigan noted that some of the care management billing issues were due in part to the timeliness and accuracy of the attribution lists. Low participation among self-insured employers using participating commercial payers as third-party administrators or administrative service-only plans also contributed to these issues, with practices receiving lower payments than anticipated and providers having difficulty identifying who was and who was not eligible for enhanced services.

3.2.3 External and Contextual Factors Affecting Implementation

States' political environments were relatively stable during the evaluation period. Only one of the eight states (North Carolina) elected a new governor during this period, and legislative control changed hands in only three states. Despite these administrative and legislative changes, political support for the state initiatives remained strong and, for the most part, did not affect implementation or day-to-day operations of the state initiatives. The one exception was Pennsylvania, where payer attrition was associated, in part, with less pressure for payer participation by the new administration, as well as a policy change in Medicaid managed care plans renewal contracts that no longer required Medicaid to participate in the state initiative.

The most significant external factor affecting implementation was the fact that each state had many other concurrent health care reform initiatives underway during the evaluation period. As seen in **Table 3-1**, six of the eight states received SIM Model Test Awards ranging from \$33 million (Maine) to \$99.9 million (New York) to implement statewide delivery and payment reforms. All MAPCP Demonstration states receiving a SIM Model Test Award planned to build upon their PCMH initiatives in some way. Further, six of the eight states had implemented one or more health home programs, which built upon the principles of the PCMH to better meet the needs of individuals with severe and persistent mental illness or comorbid chronic medical conditions. The growth of accountable care models also accelerated during the evaluation period. During the interviews, stakeholders across the states generally felt that the contemporaneous initiatives dovetailed with the multi-payer PCMH initiatives, strengthening the primary care base on which the larger reforms were built. Some "change fatigue" was reported, as state officials and providers sometimes were faced with competing priorities and limited time and resources. Several interviewees in Pennsylvania, for example, felt that the state's SIM planning was a distraction for the Chronic Care Initiative (CCI). Practices participating in the MAPCP Demonstration largely benefited from these complementary state initiatives. For example, the Maine Health Management Coalition began producing practice feedback reports with medical

and pharmacy claims data for primary care practices across the state as part of the state's SIM initiative, which benefited both MAPCP Demonstration and non-Demonstration practices.

3.2.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, given the range of practices that participated in the MAPCP Demonstration, it is clear that practice transformation is achievable for small, medium, and large practices in both rural and urban settings, as long as they are provided with sufficient resources, technical assistance, and aligned incentives and expectations across payers.

Second, although practices generally view the PCMH model as a population-based approach to care that applies to their entire patient panel, limited resources (e.g., care managers' time) often are allocated to patients with the greatest need and to areas that are expected to maximize benefit. Robust data infrastructure and reporting can play integral roles in identifying which individuals may benefit most from enhanced services such as care management. However, focusing on a subset of patients can make it challenging to demonstrate impacts measured across the full patient population.

Finally, implementing multi-payer PCMH initiatives is a complex process that requires significant time and resources for all involved. Interviewees across states and stakeholder groups were concerned that 3 years would not be enough time to show positive results, particularly in states where practices were still working to attain PCMH recognition during the first 2 years of the evaluation period. This had the potential to create tensions between stakeholders, because state leadership and payers wanted to see a return on investment to be able to make the case that they should continue participating in the program. The MAPCP Demonstration benefited from strong leadership and collaboration among the key stakeholders in nearly every state. Although there was some reported frustration that early outcomes did not show the short-term savings that some had anticipated, this leadership and collaboration resulted in seven of the eight states (all except Pennsylvania) being able to keep all participating payers at the table throughout the demonstration evaluation period, and, with Medicare's continued participation, five states (Maine, Michigan, New York, Rhode Island, and Vermont) secured commercial payer participation through 2016.

3.3 Practice Transformation

In this section, we describe the changes that practices made to join and maintain participation in the MAPCP Demonstration (**Section 3.3.1**); their views of the technical assistance made available to them to help them adopt the PCMH model of care (**Section 3.3.2**); and their views of the payment models used (**Section 3.3.3**). In **Section 3.3.4**, we move from discussing interview findings to discussing the results of our MAPCP Demonstration provider survey, fielded near the end of the demonstration, which allowed us to identify different states' levels of adoption of the overall PCMH model and specific PCMH domains of care. We also draw on our survey data to identify those PCMH activities that were widely adopted by demonstration practices and those more difficult for practices to implement.

3.3.1 Changes Practices Made During the Demonstration

PCMH recognition and practice transformation. All MAPCP Demonstration states required practices interested in participating in their initiative to meet PCMH practice recognition requirements (summarized in **Table 3-3**), either before entering the demonstration (Maine, Michigan, Minnesota, Pennsylvania, and Vermont) or within a certain number of months of entering the demonstration (New York, North Carolina, and Rhode Island). Five states chose to require practices to become recognized by the NCQA as a PCMH, whereas one state required practices to meet a mix of NCQA PCMH standards and their state's Blue Cross standards (North Carolina) and another allowed practices to choose which of these two standards to meet (Michigan). One state chose to require practices to meet its own state-developed standards (Minnesota's HCH standards, developed by the state government in consultation with stakeholders). Among the five states that opted to use only NCQA's PCMH standards, four of these states required practices to meet some additional state-specific criteria (e.g., the requirement that Rhode Island practices use an EHR that meets "Stage 1" standards to qualify for EHR incentive payments from Medicare or Medicaid).

Some common care processes frequently emphasized by states' PCMH recognition requirements included:

- *Access.* Offering same-day or next-day appointments, and clinical advice by phone or e-mail.
- *Population management.* Generating lists of patients and reminding them to come in for overdue preventive services, chronic care services, and so on.
- *Care management.* Engaging in previsit planning, creating a care plan with treatment goals, assessing barriers to patients achieving their goals, and giving patients clinical summaries of visits.
- *Referral tracking.* Giving specialists the reason for a referral and pertinent clinical information and obtaining specialists' reports, and so on.
- *Self-care.* Giving patients educational resources regarding self-management of chronic conditions (e.g., diabetes) and referring them to resources.
- *Quality improvement.* Setting goals and working to improve performance on quality measures or PCMH care processes not yet fully adopted.

Practices in some states also worked on additional activities, such as screening for behavioral health issues (i.e., mental health and substance abuse); engaging in patient education about self-management of common chronic conditions (e.g., diabetes, asthma); getting physicians to discuss the need for advance directives specifying end-of-life care preferences with patients; adopting more aspects of team-based care (e.g., daily "team huddles"); tracking and

improving performance on quality measures; and hiring new types of staff (e.g., pharmacists, social workers, dieticians, behavioral health specialists).²

Table 3-3 summarizes each MAPCP Demonstration state’s PCMH practice recognition requirements.

Practice staff we interviewed usually praised the PCMH model of primary care and could not imagine reverting to their old way of delivering care. Practices viewed the benefits of the PCMH model as improving staff engagement, motivation, and satisfaction (though sometimes increasing workloads); improving patient satisfaction; improving quality of care; improving access to care; moving practices in the “right” direction; and preparing practices to participate in ACO contracts.

Yet practices also acknowledged the costs of adopting the PCMH model (felt more acutely at the start of the demonstration), including the time needed to redesign care processes, the difficulty of trying to get staff to do things in new ways, and the administrative burden they felt was involved in preparing and compiling documentation to gain (and then maintain) recognition as a PCMH by NCQA or other certifying entities.

Practice staffing changes. To meet states’ PCMH recognition standards, the main activities that demonstration practices typically engaged in were hiring or repurposing existing staff to serve as care managers; having staff use EHRs to create registries of patients to target with care management services; and adopting a team-based approach to care, involving practice staff all working at the top of their license to care for a shared set of patients. In later years, practices often worked on refining their implementation of the PCMH model, such as by revising job descriptions for care managers (e.g., having registered nurses [RNs] do clinical charting and care plan development, and medical assistants [MAs] do scheduling and data entry) and better integrating them into their practice activities and workflow; customizing their EHRs to reflect their practice’s unique needs; and securing better data exchange with hospitals to allow care coordinators to actively manage care transitions.

² For descriptions of the PCMH activities that practices tended to focus on in different states, see the “Changes Practices Made During the Evaluation Period” section in each state chapter in this report.

Table 3-3
PCMH recognition requirements for practices participating in the MAPCP Demonstration

State	Initial requirements			Subsequent requirements
	PCMH standards	Minimum score	Care processes emphasized (e.g., state-specific mandatory criteria not required in NCQA)	
New York	NCQA	Level 2 + state-specific mandatory criteria (within 12–18 months)	Practices had to: <ul style="list-style-type: none"> ▪ Use e-prescribing; ▪ Participate in a disease registry; ▪ Develop data reporting capabilities; ▪ Meet expanded access requirements, including round-the-clock telephonic access; and ▪ Offer same-day scheduling for urgent care. ▪ P4P incentives starting in 2013, based on member satisfaction, utilization (admissions, preventable ER visits, readmissions), and development of a practice improvement plan. 	Recertify as an NCQA Level 2 PCMH within 3 years, and employ an EHR that meets MU requirements
Rhode Island	NCQA	Level 1 + state-specific “must-pass” NCQA elements (within 6 months)	Practices had to: <ul style="list-style-type: none"> ▪ Employ an EHR that meets Stage 1 MU standards; ▪ Hire and train a nurse care manager; ▪ Participate in training and reporting activities, including learning collaboratives; ▪ Implement after-hours care protocol within 6 months; and ▪ Comply with best practices for care transitions. ▪ Base payment in first year; payment tied to reporting measures in second year; payment tied to performance on measures in third and fourth years for quality, patient satisfaction, and utilization; and payment in fifth year tied to same metrics plus reporting measures of nurse care manager activity around high-risk patients. 	In second year, attain NCQA Level 2 PCMH, maintain prior requirements, and establish compacts with at least four specialists; in third, fourth, and fifth years, attain and maintain NCQA Level 3 PCMH and maintain prior year requirements

(continued)

Table 3-3 (continued)
PCMH recognition requirements for practices participating in the MAPCP Demonstration

State	Initial requirements			Subsequent requirements
	PCMH standards	Minimum score	Care processes emphasized (e.g., state-specific mandatory criteria not required in NCQA)	
Vermont	NCQA	Level 1 + state-specific mandatory criteria	Practices had to: <ul style="list-style-type: none"> Designate a quality improvement team that meets at least monthly and works with the state quality improvement program, EQuIP; Enter into an agreement with the local CHT to integrate its services into the practice; and Enter into agreements with the state's HIE/HITECH REC and demonstrate progress toward being able to communicate with the centralized state-endorsed clinical registry. 	Recertify as an NCQA Level 1 PCMH within 3 years
North Carolina	NCQA	Level 1 (by end of first year)	BCBSNC's BQPP requirements (which had to be met by the end of the second year) were as follows: <ul style="list-style-type: none"> E-prescribing; Electronic claims submission; Cultural competency training; and A triage protocol for after-hours care. 	BCBSNC's Blue Quality Physician Program requirements (by end of second year), described at left
Minnesota	Minnesota HCH standards	Meet 100% of standards (though "variances" given for particular standards, if practice agrees to a corrective action plan that will eventually allow them to meet a standard)	Year One standards required practices to: <ul style="list-style-type: none"> Offer round-the-clock access to practice staff with access to patients' records; Engage in population health management using an electronic searchable registry; Engage in care coordination using team-based care; Develop individualized care plans for high-risk patients; Have a Quality Team and a Quality Plan; and Report on quality measures regarding vascular health, asthma, diabetes care, depression, colorectal cancer screening, patient experience, and 30-day all-cause readmissions. 	Meet the state's first recertification standards and then the second recertification standards (which are different from each other) at 18-month intervals

(continued)

Table 3-3 (continued)
PCMH recognition requirements for practices participating in the MAPCP Demonstration

State	Initial requirements			Subsequent requirements
	PCMH standards	Minimum score	Care processes emphasized (e.g., state-specific mandatory criteria not required in NCQA)	
Maine	NCQA	Level 1 + 10 core expectations	Practices had to meet 10 core expectations: <ul style="list-style-type: none"> ▪ Leadership commitment; ▪ Team-based approach to care; ▪ Population management; ▪ Enhanced beneficiary access; ▪ Integrated care management; ▪ Integrated behavioral and physical health; ▪ Patient and family inclusion; ▪ Community connections (including public health organizations); ▪ Commitment to reduce unnecessary spending and improve cost effectiveness; and ▪ Integration of health IT. 	Recertify as an NCQA Level 1 PCMH within 3 years
Michigan	BCBS Michigan's PGIP: PCMH designation or NCQA	BCBS Michigan PCMH designation or NCQA Level 2	Care processes emphasized in BCBS Michigan's PCMH standards (must-pass elements): <ul style="list-style-type: none"> ▪ Population management (registry functionality); ▪ Expanded access (expanded hours, round-the-clock access to a clinical decision maker, and 30% open access slots); ▪ Quality measurement (performance reporting); ▪ Care management staffing (either directly or through affiliated PO, at a minimum mandatory staffing ratio); ▪ Referral and tracking capacity between specialists and primary care practices; ▪ Affiliation with a PO; ▪ Participation in learning activities; and ▪ Performance measures: utilization, clinical quality (e.g., asthma, cancer screening, diabetes, well-child visits, cardiovascular disease), capability (e.g., self-management supports available). 	Recertify as a BCBS Michigan PCMH annually or Recertify as an NCQA Level 2 PCMH within 3 years

(continued)

Table 3-3 (continued)
PCMH recognition requirements for practices participating in the MAPCP Demonstration

State	Initial requirements			Subsequent requirements
	PCMH standards	Minimum score	Care processes emphasized (e.g., state-specific mandatory criteria not required in NCQA)	
Pennsylvania	NCQA	Level 1 + state-specific must-pass NCQA elements	State-specific must-pass NCQA elements included: <ul style="list-style-type: none"> ▪ For practices certified with NCQA's 2008 PCMH standards: <ul style="list-style-type: none"> – Nonphysician staff perform basic care management (element 3C) – Specific care management activities (element 3D) – Patient education and self-management of conditions (element 4B) ▪ For practices certified with NCQA's 2011 PCMH standards: <ul style="list-style-type: none"> – Care planning and management (NCQA 2011 element 3C) – Quality measures used when calculating shared savings payments differ for adult and pediatric practices but cover three domains: prevention; management of chronic conditions; and clinical care management – Practices must demonstrate transformation on a state-specific self-assessment survey, and pass annual site audits to assess care management systems 	Recertify as an NCQA Level 1 PCMH within 3 years + meet a smaller number of state-specific must-pass elements

NOTES:

- Both the 2008 and 2011 NCQA PCMH standards use a three-tier recognition approach, whereby practices are recognized as a Level 1, 2, or 3 PCMH, depending on the percentage of NCQA standards they meet; Level 3 is the most advanced level of recognition.
- From 2008 to 2010, PCMH recognition was only available from NCQA using their 2008 standards.
- In 2011, practices could become recognized as a PCMH using NCQA's 2008 or 2011 standards.
- Starting in 2012, practices could use only NCQA's 2011 standards to obtain PCMH recognition.

BCBS = Blue Cross Blue Shield; BCBSNC = Blue Cross Blue Shield of North Carolina; BQPP = Blue Quality Physician Program; CHT = community health team; EHR = electronic health record; EQuIP = Expansion and Quality Improvement Program; ER = emergency room; HCH = Health Care Home; HIE = health information exchange; HITECH REC = Health Information Technology for Health and Clinical Health Regional Extension Center; health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; MU = meaningful use; NCQA = National Committee for Quality Assurance, P4P = pay-for-performance; PCMH = patient-centered medical home, PGIP = Physician Group Incentive Program; PO = physician organization.

Care coordinators generally were viewed as the most central, transformative aspect of the PCMH model. As a new role in these practices, there was wide variation in the clinical background of care coordinators (e.g., RNs, MAs, social workers), the number of patients they managed, and their duties, although three core tasks emerged:

- *For high-risk patients.* Care coordinators tended to identify, obtain, and summarize records from all other providers and answer patient questions between visits.
- *For patients due for preventive services.* Care coordinators would mine their EHR to identify these patients and then contact them to schedule appointments.
- *For patients recently seen in the hospital or ER.* Care coordinators would find out when their patients were seen in the hospital and then contact them by phone to reconcile medications and schedule a follow-up appointment.

Care coordinators also engaged in additional activities, which varied both within and across demonstration states. These activities included meeting directly with patients to modify and titrate medications, to engage patients in setting health goals, and to educate them on self-managing their chronic diseases. Care coordinators also sometimes were tasked with preparing or assembling the documentation or quality measure data needed to gain or renew formal recognition from NCQA as a PCMH.³

Practices often also made other staffing changes, unrelated to their care coordination staff. For example, practices sometimes hired additional providers to expand their office hours or to increase the availability of same-day appointments. Some organizations that supported multiple practices (e.g., Pods in New York, CCNC networks in North Carolina) hired staff with specialized expertise, such as clinical pharmacists and nutritionists, to work with multiple practices. We also heard about some practices hiring social workers or behavioral health specialists to administer behavioral health screening questionnaires to patients and refer them to behavioral health resources and social services in the community. Practices sometimes hired staff focused specifically on information technology (IT) and data management, nurses certified as diabetes educators, or lay patient navigators. The types of staff hired by demonstration practices varied depending on the needs of practices' patients and the availability of practice funds to hire additional staff.

Finally, we heard that staff turnover was an issue for some practices in a few states, as providers, care coordinators, or other staff who were not interested in the added responsibilities of practicing as a PCMH left demonstration practices for more traditional practices or retired. Only a small minority of practice staff seemed to fall into this category. Our interviews with practice staff who stayed suggested that there was generally widespread and enthusiastic support for the PCMH model among most practice staff.

Health IT. Practices initially experienced significant growing pains as they got used to using their EHRs but eventually came to believe that EHRs improve patient care. Practices often

³ For descriptions of the care coordination activities that practices tended to focus on in different states, see the "Changes Practices Made During the Evaluation Period" section in each state chapter in this report.

had spent a year adapting to their EHR, *then* turned to the PCMH model—instead of trying to modify practice workflows to accommodate both of these changes at once. Although practices often actively used EHR registry functions and other features *within* their practice, they were frustrated with the lack of interoperability between different EHR vendors. This prevented them from being able to exchange with other providers electronic data that could automatically be populated in their EHRs; instead, providers tended to receive PDFs of patient records. It was often also difficult to get hospitals who were not part of the same health care system as a practice to agree to send regular information alerting practices when their patients were seen in the hospital.

3.3.2 Technical Assistance Offered to Practices

MAPCP Demonstration states offered participating practices technical assistance aimed at helping them adopt the PCMH model, including learning collaboratives (involving in-person meetings and webinars or conference calls) and one-on-one practice coaching or consultants. Michigan also made available extensive ongoing training and technical assistance aimed specifically at care managers.

Practice staff's views of technical assistance ranged from quite positive (for example, Maine and North Carolina) to more mixed assessments of its usefulness, with some interviewees feeling that technical assistance was too elementary (Michigan), or initially useful but then redundant in later years (Pennsylvania). Some interviewees also complained of how time-consuming it was to participate in technical assistance offerings (Pennsylvania, Michigan, and Vermont). Some states made changes to technical assistance offerings or added new topics based on practice feedback (for example, Maine and Minnesota, where technical assistance came to be viewed positively over time). One particular aspect of learning collaboratives that practice staff singled out for praise was the opportunity to learn from other practices (Maine and Minnesota).

Maine, New York, Pennsylvania, Rhode Island, and Vermont had access to practice-level feedback reports, beneficiary utilization files, and beneficiary assignment files through the MAPCP Demonstration Web Portal. There was wide variation across states in the usage of these data, although in general usage was relatively low and diminished over time. New York consistently had the highest usage (with 95% or more of practices logging on to the portal at least once per quarter), because the state chose to have one staff member from a Pod access the portal and distribute reports to each of the practices within a Pod. The other states had consistently low usage (with between 15% and 40% of practices logging on at least once per quarter).

Feedback from the states and practices indicated that beneficiary-level utilization data included in the MAPCP Demonstration Web Portal were the most useful because they could be used to identify beneficiaries in need of care management. Some practices were confused by the beneficiary assignment files they accessed because the lists of beneficiaries assigned to them for a quarter often did not match the list of Medicare beneficiaries they thought should have been assigned to them. Providers nevertheless found it useful to see trends in utilization and expenditures over time, and appreciated being able to view their practice's performance on quality-of-care measures for Medicare patients.

CMS and RTI International staff attempted to increase usage of the MAPCP Demonstration Web Portal by explaining the value of these data, making adjustments to increase the value of the files and reports available through this portal, and asking state initiative staff to encourage their practices to use the portal. CMS provided each state with a monthly file showing MAPCP Demonstration Web Portal login activity to help states monitor usage and identify practices and organizations that were not regularly accessing the portal. The utility of the portal did not increase as more experience was gained with the demonstration and as more data accrued over time, despite efforts to increase usage.

As mentioned in *Section 3.1.4*, demonstration practices also had access to reports that presented practice-level quality and utilization measures based on claims data and practice-reported measures from other sources. As with the portal, these data tended to be viewed as helpful when they were generated using recent data (even 6-month old data were considered too dated); these data were also viewed as most helpful when they aggregated data from multiple payers. The dashboard offered by Rhode Island had the most positive reception among the demonstration states and was widely used by the second year of the demonstration and valued by practice staff that we interviewed. It was updated quarterly and included practice-reported quality and utilization measures based on data from Medicaid managed care plans, Medicare Advantage plans, and commercial plans.⁴ Rhode Island's dashboard allowed practices to compare their performance with other participating practices and included data on measures used to determine performance-based payments in the demonstration—thus giving practices a major incentive to refer to this dashboard. Meanwhile, practices had more mixed or even negative views of many other quality measure reports to which they had access, which they typically felt were too dated or inaccurate to be useful. We also heard some complaints about different payers using different measures, defining measures differently, using different data sources, or using different report formats, which made it difficult for practices to digest these reports easily.

3.3.3 Demonstration Payments

MAPCP Demonstration payment designs varied widely by state, but payments to practices were aimed at not exceeding \$10 per beneficiary per month (PBPM), on average.⁵ Some interviewees pointed out that these payments were lower than CMS's concurrent Comprehensive Primary Care initiative (which was meant to average \$20 PBPM for 2 years, then \$15 PBPM).

Most states sought to incentivize or account for different practice or patient features in their Medicare demonstration payment models. Some did this by offering higher payments to practices with an in-house care coordinator (Michigan and Rhode Island) or that had achieved higher scores on NCQA's PCMH practice recognition standards (North Carolina and Vermont). Others incentivized working with specific types of patients by offering higher demonstration payments for patients with more chronic conditions (Minnesota), more advanced age (Pennsylvania), lacking English as a native language (Minnesota), or a serious and persistent mental illness (Minnesota). Half of the demonstration states incorporated a pay-for-performance

⁴ Information for Medicare FFS patients was available through a practice portal established by RTI.

⁵ <https://innovation.cms.gov/Files/x/mapcpdemo-Solicitation.pdf>

element into their payment model to incentivize practices to improve performance on quality measures (Michigan, New York, Pennsylvania, and Rhode Island).

In three states, a single payment model was used by all participating payers (New York, Vermont, and Pennsylvania), whereas the other states allowed different payers to use different but comparable payment models. **Table 3-4** details MAPCP Demonstration payments to practices in the eight states.

MAPCP Demonstration payments offered to nonpractice supporting entities (Maine, Vermont, Michigan, New York, and North Carolina) are described in **Table 3-5**.

Despite the variation in payment amounts and approaches, interviewees' views about payments were quite consistent across all eight MAPCP Demonstration states. Practices were grateful to receive them but felt that payment amounts were insufficient to cover the cost of all of the enhancements made to their practice. Demonstration payments usually were used to offset the cost of new care managers' salaries, and sometimes to purchase or upgrade an EHR system or hire staff specializing in quality management (Maine) and social workers, dietitians, or mental health professionals (Vermont).

Table 3-4
Payments PMPM to MAPCP Demonstration practices¹

State	Medicare	Medicaid	Private payers
New York	\$7.00 ² (included \$0.50 for P4P incentive pool and varying amounts for support organizations)		
Rhode Island	Same payment methodology as Medicaid and private payers, except Medicare payment was capped at \$6.00 ³	<u>Developmental contract startup (first year):</u> \$3.00 +\$2.50 ³ (for nurse care manager) <u>Developmental contract transition (second year):</u> \$5.50 ³ +\$0.50 if quality measurement/reporting requirement met <u>Developmental contract Performance Year One (third year):</u> \$5.50 ³ +\$0.50 for each quality, patient experience, or utilization performance target met (up to a maximum of \$2.00) (Up to a maximum of \$7.50) <u>Developmental contract Performance Year Two (fourth year):</u> \$5.50 ³ +\$0.50 for achieving 4 out of 7 quality performance targets OR +\$0.75 for meeting 6 out of 7 quality performance targets +\$0.50 for achieving 2 out of 3 patient experience performance targets +\$1.25 for achieving inpatient admissions reduction targets +\$0.75 for achieving ER visit reduction target (Up to a maximum of \$8.75) <u>Developmental contract Performance Year Two-A (fifth year):</u> \$5.50 ³ +\$0.50 for achieving 5 out of 7 quality performance targets and testing new measures +\$0.50 for achieving 4 out of 6 patient experience performance targets +\$0.50 for achieving inpatient admissions reduction targets +\$0.50 for achieving ER visit reduction target +\$1.25 for managing high-risk patients and reporting on transitions of care, nurse care manager metrics (Up to a maximum of \$8.75)	
	<u>Original 2-year contract:</u> \$3.00 +\$1.16 (for nurse care manager) ³ <u>Year One renewal:</u> \$5.50 ³ <u>Year Two+ renewals:</u> \$5.00 ³ (0–1 performance targets met)/\$5.50 (utilization target and 1 other target met)/\$6.00 (all targets met)		

(continued)

Table 3-4 (continued)
Payments PMPM to MAPCP Demonstration practices¹

State	Medicare	Medicaid	Private payers
Vermont	\$1.20 to \$2.39 (depending on NCQA 2008 score)/\$1.36 to \$2.39 (depending on NCQA 2011 score)		
North Carolina	\$2.50/\$3.00/\$3.50 (NCQA Level 1/2/3)	\$5.00/\$2.50 (ABD patients/non-ABD patients)	BCBSNC: Enhanced fee schedule equivalent to a minimum of \$1.50 State Employee Health Plan: inclusive with BCBSNC enhanced fee schedule above
Minnesota ⁴	\$10.14 (1–3 conditions)/ \$20.27 (4–6 conditions)/ \$30.00 (7–9 conditions)/ \$45.00 (10+ conditions) +15% for mental illness +15% for patients who speak English as a second language	\$10.14 (1–3 conditions)/ \$20.27 (4–6 conditions)/ \$40.54 (7–9 conditions)/ \$60.81 (10+ conditions) +15% for mental illness +15% for patients who speak English as a second language	State allowed any payment methodology consistent with Medicaid’s MAPCP Demonstration payment rates
Maine	\$6.95	\$12.00	\$3.00
Michigan	\$2.00 +\$4.50 (if had a care manager ⁵) +P4P incentives	\$1.50 +\$3.00 (if had a care manager ⁵) +P4P incentives	Payment methodology that was actuarially equivalent to \$1.50 +\$3.00 (if had a care manager ⁵) +P4P incentives
	(Public payers contributed \$3.00 PBPM to an incentive pool ⁶)		(Private payers paid incentives equivalent to \$3.00 PMPM ⁶)

(continued)

Table 3-4 (continued)
Payments PMPM to MAPCP Demonstration practices¹

State	Medicare	Medicaid	Private payers
Pennsylvania	Year One: \$1.50 +\$0.60 (age 1–18)/\$1.50 (age 19–64)/\$5.00 (age 65–74)/\$7.00 (age 75+) +Up to 40% of the net savings they generated for a payer, based on cost and quality performance Year Two: \$1.28 +\$0.51 (age 1–18)/\$1.28 (age 19–64)/\$4.25 (age 65–74)/\$5.95 (age 75+) +Up to 45% of the net savings they generated for a payer, based on cost and quality performance Year Three: \$1.08 +\$0.43 (age 1–18)/\$1.08 (age 19–64)/\$3.61 (age 65–74)/\$5.06 (age 75+) +Up to 50% of the net savings they generated for a payer, based on cost and quality performance		

NOTES:

¹ Medicare amounts do not reflect sequestration, which reduced payments by 2 percent starting in April 2013.

² In New York, practices were paid \$7.00 PBPM. From this amount, practices were required to contribute \$0.50 to a P4P incentive pool administered by the AHI, \$0.10 to AHI to administer this P4P incentive pool, and \$0.50 to AHI for vendor management, a data warehouse, and other centralized activities. The remaining \$5.90 for practices supported care management and other centralized services, such as quality improvement and reporting activities in Pods 2 and 3, and enhanced physician salaries in Pod 2. As an alternative to paying practices \$7.00 PMPM, private payers could increase payment rates for E&M visits in a manner that was actuarially equivalent to \$7.00 PMPM.

³ For practices that used a care manager employed by South County Hospital, this amount was reduced by \$1.16 under the original 2-year contract, by \$1.50 under the renewal contracts, and by \$2.50 under the developmental contract.

⁴ Minnesota gave 37 practices \$5,000 mini-grants in 2010 and funded technical assistance for four safety net clinics in 2011.

⁵ Paid to practices if the practice funded the care manager salary; otherwise paid to the PO (see *Table 2-3*).

⁶ Incentive payments went to POs, which paid at least 80 percent to practices.

ABD = aged, blind, or disabled; AHI = Adirondack Health Institute; BCBSNC = Blue Cross Blue Shield of North Carolina; E&M = evaluation and management; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; NCQA = National Committee for Quality Assurance; P4P = pay-for-performance; PBPM = per beneficiary per month; PMPM = per member per month; PO = physician organization.

Table 3-5
Payments PMPM to MAPCP Demonstration supporting organizations in five states¹

State	Medicare ²	Medicaid	Private payers
New York ³	Pods (physician practice support organizations): Dollar amounts varied by Pod (for care management and other centralized services) AHI: \$0.50 (for vendor management, data warehouse, and other activities) \$0.10 (administration fee for P4P incentive pool) \$0.50 (contribution to P4P incentive pool, which is then reallocated to practices)		
Vermont	CHTs: \$1.64 SASH program: \$5.21	CHTs ⁴ : \$84,770	CHTs ⁴ : BCBS of Vermont \$84,770; Cigna \$63,770; Mohawk Valley Plan \$38,920
North Carolina	Community Care Networks: \$6.50	Community Care Networks: \$13.72 (ABD patients) \$3.72 (non-ABD patients)	Community Care Networks: \$2.50 (paid by BCBSNC) Annual lump sum based on a 1:40 ratio of 1 full-time equivalent nurse care manager to 40 high-risk members (paid by the State Employee Health Plan)
Maine	CCTs: \$2.95	CCTs: \$129.50 for high-risk Medicaid beneficiaries who enrolled in practices certified as Health Homes ⁵	CCTs: \$0.30 from most participating commercial payers + an initial \$25 from Maine Community Health Options if team provided outreach to a patient at least three times + \$150 PBPM if patient enrolled in demonstration
Michigan ⁶	POs: \$4.50 (if employed a care manager) + up to 20% of P4P incentives	POs: \$3.00 (if employed a care manager) + up to 20% of P4P incentives	POs: \$3.00 (if employed a care manager)

(continued)

Table 3-5 (continued)
Payments PMPM to MAPCP Demonstration supporting organizations in five states¹

State	Medicare ²	Medicaid	Private payers
Michigan ⁶ (continued)	MAPCP Demonstration program management: \$0.26	MAPCP Demonstration program management: \$0.26	MAPCP Demonstration program management: \$0.26

NOTES:

- ¹ Some of the demonstration payments (not shown in table) were paid directly to a hospital that provided care coordination services to patients of a few demonstration practices in Rhode Island.
- ² Medicare amounts do not reflect sequestration, which reduced payments by 2 percent starting in April 2013.
- ³ In New York, practices were paid \$7.00 PBPM. From this amount, practices were required to contribute \$0.50 to a P4P incentive pool administered by AHI; \$0.10 to AHI to administer this P4P incentive pool; and \$0.50 to AHI for vendor management, a data warehouse, and other centralized activities. The remaining \$5.90 for practices supported care management and other centralized services, such as quality improvement and reporting activities in Pods 2 and 3 and enhanced physician salaries in Pod 2. As an alternative to paying practices \$7.00 PMPM, private payers could increase payment rates for E&M visits in a manner that was actuarially equivalent to \$7.00 PMPM.
- ⁴ In Vermont, Medicaid and commercial payers were responsible for a percentage of the total cost of the CHTs, rather than a PMPM.
- ⁵ In Maine, only two demonstration practices were not certified as Health Homes by the state's Medicaid program. Payments were made only for patients who were provided with services by CCTs.
- ⁶ In Michigan, all payers funded program management, evaluation, data analytics, and learning activities through a PMPM administrative support fee.

ABD = aged, blind, or disabled; AHI = Adirondack Health Institute; BCBS = Blue Cross Blue Shield; BCBSNC = Blue Cross Blue Shield of North Carolina; CCT = community care team; CHT = community health team; E&M = evaluation and management; MAPCP: Multi-Payer Advanced Primary Care Practice; P4P = pay-for-performance; PBPM = per beneficiary per month; PMPM = per member per month; PO = physician organization; SASH = Support and Services at Home.

Some concerns about demonstration payments were more state-specific and driven by billing logistics and payment methodologies:

- In Minnesota, many practices chose not to submit claims to Medicare FFS and Medicaid FFS for monthly payments once they realized that the cost of modifying their billing systems to generate claims without a face-to-face visit would exceed the revenues earned from submitting these claims. A major reason was that many practices had very few patients insured through these programs, because Minnesota has the highest penetration of Medicare Advantage plans in the country (51%) and an even higher percentage of Medicaid beneficiaries in managed care (66%). This was less of an issue for patients insured through Medicaid managed care plans or private health insurance plans, because these plans built payments for health care home services into the payments they were making to practices.⁶ Minnesota practices also complained about tying payment amounts to beneficiaries' number of chronic conditions, because patients could have few chronic conditions but still be quite complex. Minnesota practices also were displeased about needing to spend time convincing patients to opt in to the program, as required by the state. Another reason why some practices did not submit claims to receive demonstration payments was

⁶ Medicare Advantage did not participate in Minnesota's demonstration.

that it would count as costs incurred when calculating potential shared savings bonuses, which was an issue for practices that had entered into ACO-style contracts with some payers. Other complaints about the state’s payment model are described in *Section 8.2.3*.

- In Pennsylvania, most practices agreed to reductions in PMPM demonstration payments in Years Two and Three of the demonstration in exchange for the chance to earn a higher percentage of shared savings payments than was available in Year One. They were frustrated when they failed to generate enough savings to qualify for these bonuses in Year One or Two.⁷ Practices generally felt that Medicare’s requirement that practices generate more savings than a CG of PCMH practices, rather than a CG of non-PCMH practices, was inappropriate. (See *Section 11.2.3*.)
- In North Carolina, practices reported significant problems with the state’s transition to a new Medicaid Management Information System, which began on July 1, 2013, and resulted in practices not receiving complete Medicaid payments until March 2014. Practice staff also were frustrated that solving related billing issues required diverting staff from PCMH activities. (See *Section 7.2.3*.)
- In Michigan, practices were frustrated by the administrative burden associated with documenting and submitting FFS claims for demonstration payments (which was required by some private payers, but not Medicare or Medicaid). These practices also complained that such claims were often rejected. (See *Section 10.2.3*.)

3.3.4 Practice Transformation Survey Findings

In this section, we present the results of our provider survey, which was fielded near the end of the demonstration (in early 2015) and asked participating providers to assess the degree to which they were engaging in various PCMH activities. We present findings about practices’ overall PCMH performance in each state, as well as their performance on specific PCMH domains of care. We also identify which PCMH activities tended to be “low-hanging fruit” that practices often were able to adopt, as opposed to more advanced capabilities that fewer were able to master.

Overall practice transformation. Overall PCMH performance was calculated as the average percentage of PCMH activities in our provider survey that respondents reported engaging in at a high level. For a provider to be considered engaging in an activity at a high level, they had to select the third and most advanced answer option for a question.

In the first row of *Table 3-6*, six states’ demonstration practices reported high-level adoption of a percentage of PCMH activities that was not significantly different from the eight-state average score of 72 percent.⁸

⁷ Practices did qualify for shared savings payments in Year Three but did not learn about this until 9 months after the demonstration ended, and the actual distribution of payments came even later.

⁸ We define high-level adoption or implementation of a PCMH activity as selection of the third and most advanced answer option for a particular survey question.

Table 3-6
Percentage of PCMH activities implemented at a high level,¹ as reported in provider survey

	8-State Average²	New York³	Rhode Island⁴	Vermont⁵	North Carolina⁶	Minnesota⁷	Maine⁸	Michigan⁹	Pennsyl- vania¹⁰
Overall Practice Transformation Index (% of activities implemented at a high level, out of 23 PCMH activities)	72	76	76	74	60*	70	70	76*	77
Practice Transformation Index by Domain (% of activities implemented at a high level, within each survey domain)									
Health IT	93	99*	94	84*	88	94	98*	94	96
Care management (without involvement of other providers)	78	82	79	79	66*	76	78	85*	83
Access to care	76	80	80	82*	59	74	75	79*	83
Quality improvement	76	62	71	70	62	79	77	79*	77
Care coordination (involving other health care providers)	68	71	78*	71	58	62*	68	69	69
Patient engagement and self-management	57	61	61	57	45	59	48*	76*	64

NOTES:

¹ High-level implementation or adoption of a PCMH activity refers to selecting the third and most advanced answer option for a particular survey question.

² Unweighted average of the state averages for the eight MAPCP Demonstration states, based on n = 1,022 completed provider surveys in these eight states.

³ Based on n = 82 completed provider surveys in New York.

⁴ Based on n = 33 completed provider surveys in Rhode Island.

⁵ Based on n = 126 completed provider surveys in Vermont.

⁶ Based on n = 26 completed provider surveys in North Carolina.

⁷ Based on n = 188 completed provider surveys in Minnesota.

⁸ Based on n = 90 completed provider surveys in Maine.

⁹ Based on n = 431 completed provider surveys in Michigan.

¹⁰ Based on n = 46 completed provider surveys in Pennsylvania.

IT = information technology; MAPCP: Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Significantly different from the “All State” average at the 10 percent level.

Practices in one state, Michigan, performed at a level that was significantly higher than the eight-state demonstration average (76% versus 72%). Three other states' scores were nearly identical to Michigan's (New York, Pennsylvania, and Rhode Island) but were not statistically significant due to the much smaller numbers of responding practices in those states, which created larger standard errors.

At the other extreme, the average North Carolina demonstration practice reported performing only 60 percent of the PCMH activities at a high level. Despite the small sample size in this state, which was in part due to a low survey response rate (35%), the difference between the North Carolina average and the eight-state average was statistically significant.

A few factors might explain North Carolina's poor performance on this survey and other metrics used in this evaluation. Relatively few new care managers were hired in the state, with existing care managers often asked instead to take on increased workloads. Practices reported having limited time available to make patient care improvements due to time needed to meet two separate PCMH practice recognition requirements (NCQA's and then, later, the local Blue Cross plan's). Also, the availability of data analytics to help practices identify patients to target with care management was delayed until Year Three. In addition, most of the practices we interviewed did not have full-featured EHRs before the start of the demonstration, and they needed to spend time during the first year of the demonstration acquiring and learning how to use new EHRs. Several practices we interviewed spent time in the second year of the demonstration transitioning to a different EHR, to meet requirements to receive "meaningful use" EHR incentive payments from Medicare or Medicaid. In the third year, practice staff we interviewed still sometimes mentioned difficulties using their EHRs. North Carolina also set some of the lowest expectations for practices entering their demonstration, requiring them only to meet NCQA Level 1 PCMH recognition, with no additional state-specific requirements (unlike most other states), and giving them a whole year to meet these standards (rather than requiring them to meet these standards at the start of the demonstration, as five of the eight states required).

Performance in various PCMH domains. Composite indices were created by grouping provider survey questions on like topics (shown in the remainder of **Table 3-6**). Similar to the findings above, Michigan performed better than the other MAPCP Demonstration states, with its large sample size allowing us to identify performance in five of six domains as significantly higher than the eight-state average for the demonstration. Meanwhile, North Carolina had lower performance than the eight-state average on all six PCMH domains, though these differences were only statistically significantly lower than the eight-state average for the care management domain. Findings about eight-state average performance on these PCMH domains follow (with each state's scores weighted equally, so that large states do not dominate our eight-state average). The specific survey questions that comprise each of these composite domains are identified in **Table 3-8**.

- *Health information technology.* Health IT was the PCMH domain in which providers reported the highest performance. On average, 93 percent of demonstration providers reported high-level use of advanced EHR features, including clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and

features of practices' EHRs that allowed staff to generate quality measure data.⁹ This finding is not surprising because most states required demonstration practices to achieve PCMH certification using NCQA's standards, which put a heavy emphasis on having EHRs.¹⁰

- *Care management.* Care management activities were the second most commonly performed set of activities from our provider survey. On average, 78 percent of demonstration providers reported performance of advanced care management activities—which we define as activities *not* involving outside entities (in contrast to care coordination activities, which *do* involve outside entities).
- *Access to care.* A relatively high share of providers in the demonstration states also reported offering high-level access to care, such as through same-day appointments, round-the-clock access to practice staff by phone, and responses to patients' e-mails; on average, 76 percent of demonstration providers reported offering this type of enhanced access. This high performance is likely explained by the fact that most demonstration states explicitly required practices to offer enhanced access, beyond simply meeting the access-related requirements included in NCQA's PCMH standards (as shown in *Table 3-3*).
- *Quality improvement.* A relatively high share (76%) of demonstration providers also reported engaging in quality improvement activities, such as by making incremental changes to practice workflows using the plan-do-study-act approach, tracking performance on quality measures and working to improve performance on these metrics, or formally collecting feedback from patients such as through a survey and using the findings to make practice improvements.
- *Care coordination.* A noticeably lower share (68%) of demonstration providers were able to report high-level performance of care coordination activities, which we define as activities involving working with other entities outside of the practice, such as specialists and hospitals. The fact that it was easier for practices to engage in care management activities than care coordination activities is not surprising, because care coordination was not wholly within demonstration practices' control, and specialists and hospitals usually had no new financial incentives to exchange records and communicate in a timely fashion with the primary care practices in this demonstration—making it difficult for practices to achieve high performance in this domain.

Patient engagement and self-management. Patient engagement was the most difficult PCMH domain for demonstration providers to master, with only 57 percent reporting engaging in this set of activities at a high level. Given the amount of staff time required to meaningfully

⁹ Because only one question fed into the health IT domain, we report performance on that one health IT question here, instead of reporting the percentage of activities within the health IT domain that practices reported engaging in at a high level.

¹⁰ <http://www.urban.org/sites/default/files/publication/24956/412338-Patient-Centered-Medical-Home-Recognition-Tools-A-Comparison-of-Ten-Surveys-Content-and-Operational-Details.PDF>

engage with patients and provide self-management education, the rushed environments that primary care practices tend to operate within, and the lack of formal education most practice staff receive in activities like motivational interviewing and nutrition education, it is not surprising that these PCMH activities appear to have been given the lowest priority.

Performance of specific PCMH activities. In this section, we report the percentage of providers who reported engaging at a high level in a particular activity asked about in our survey. We identify the specific PCMH activities that practices were more likely to report performing at a high level and those for which they were less likely to report high-level performance in *Table 3-7*.

Activities for which a high percentage of providers reported high-level performance include several activities that a care coordinator or care manager might engage in, such as reviewing medications of patients taking multiple medications (97%); sending referral information to specialists (91%); coordinating care management with other providers (87%); tracking and following up with patients about test results (87%); following up with patients seen in the ER or hospital (80%); and using registries to identify patients who have not yet received recommended preventive services (78%). In addition, providers often reported high-level performance of several activities related to enhanced access to care, such as having appointment systems allowing for same-day or walk-in appointments (90%); and having a system for responding to urgent patient problems via phone, e-mail, or face-to-face visits (86%). A large share (93%) of demonstration providers reported setting up and using advanced functionalities of their EHRs, such as clinical decision support prompts and EHR quality measure reporting, and engaging in quality improvement activities such as plan-do-study-act cycles and collecting and using patient experience data for improvement purposes (81%).

PCMH activities that were being performed at a high level by comparatively fewer demonstration providers included entering into agreements with other practices specifying referral protocols (50%); intensive use of registries (59%); referring patients to behavioral health supports or community-based resources (64%); and offering 24-hour-a-day, 7-day-a-week access to the practice for urgent matters (69%). In addition, providers were less likely to report developing care plans with self-management and clinical goals collaboratively with patients with chronic conditions (63%); incorporating patient values and preferences into care plans (51%); and engaging in patient goal-setting and self-management support (57%).

Table 3-7
Percentage of provider survey respondents reporting high-level adoption¹ of PCMH activities, arrayed by most-adopted to least-adopted activity

Survey question ²	8-state average ³
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	97
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	93
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	90
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	91
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	87
Tracking and follow-up with patients about test results... Is consistently done.	87
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems though phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	86
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	84
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	81
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. The practice has agreements in place with the hospitals and facilities patients most commonly use. The practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	80
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	79
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. The practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	78
Tracking and follow-up with patients for important referrals... Is consistently done.	75

(continued)

Table 3-7 (continued)
Percentage of provider survey respondents reporting high-level adoption¹ of PCMH activities, arrayed by most-adopted to least-adopted activity

Survey question ²	8-state average ³
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	74
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	71
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings and weekends. The practice actively participates in coordinating ER care, and follows up with patients after visits to the ER.	69
Involving patients and caregivers in health care decision-making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and teach-back techniques.	67
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	64
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	63
Registries... Are available to practice teams and routinely used for previsit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	59
Patient self-management support for chronic conditions... Is provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	57
Assessing patient and family values and preferences... Is systematically done for all patients who have significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	51
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	50

NOTES:

¹ High-level adoption or implementation of a PCMH activity refers to selecting the third and most advanced answer option for a particular survey question.

² Text in table is the third and most advanced answer option for each of the 23 PCMH survey questions in the provider survey.

³ Unweighted average of the state averages for the eight MAPCP Demonstration states, based on n = 1,022 completed provider surveys in these eight states.

EHR = electronic health record; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

States' performance for each of the 23 PCMH activities asked about in our provider survey appears in **Table 3-8**, with similar questions grouped into the PCMH domains referenced earlier. When we look at states' performance for individual PCMH activities, we find a significantly lower-than-average share of North Carolina providers reporting high performance of quite a few (10) PCMH activities, consistent with the earlier findings for PCMH domains. We did not find that a significantly greater share of North Carolina providers reported higher levels of performance for any of the surveyed PCMH activities. In contrast, in the other states, a significantly higher share of providers reported a high level of performance compared with the demonstration average for at least some of the surveyed activities.

The highest-performing state was Michigan, in which a significantly higher-than-average share of providers reported high performance for 10 of the 23 PCMH activities in our survey. Rhode Island had the second-best performance, with a significantly higher-than-average share of its providers reporting high performance for 8 PCMH activities. Neither Rhode Island nor Pennsylvania reported a below-average rate of performance of an activity. New York providers performed only one activity at a lower rate than the eight-state average, and Michigan and Maine reported below-average rates of performance for only two activities.

We identify and discuss above-average and below-average performance for particular PCMH activities in our state chapters (**Chapters 4** through **11**), contextualizing these findings by noting which PCMH activities that particular states emphasized, the experiences of the practice staff we interviewed as they attempted to engage in these activities, and the degree to which the Medicare and Medicaid beneficiaries in focus groups and the Medicare beneficiaries we surveyed reported experiencing these practice activities.

Table 3-8
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
<i>Access to Care</i>									
Appointment systems... Have pre-scheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	90	88	94	92	96	89	86	86*	93
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	86	80	88	91*	88	83	88	83	83
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings and weekends. The practice actively participates in coordinating ER care, and follows-up with patients after visits to the ER.	69	84*	59	63	35*	78*	71	82*	76
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	71	79	75	87*	31*	70	67	77*	83*

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Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	74	87*	91*	75	46*	65*	79	71	78
Care Management (without involvement of other providers)									
Registries... Are available to practice teams and routinely used for previsit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	59	60	63	64	31*	65	64	70*	55
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	84	88	93*	74*	73	82	82	86	93*
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	97	99	97	98*	96	88*	97	98	100

(continued)

Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	87	89	93	82	62*	89	94*	93*	91
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	78	87*	80	74	42*	78	87*	91*	94
Tracking and follow-up with patients about test results... Is consistently done.	87	89	73	92*	92	89	91	90*	75
<i>Care Coordination (involving other health care providers)</i>									
Tracking and follow-up with patients for important referrals... Is consistently done.	75	86*	77	82	73	63*	76	74	70
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	50	54	67*	50	23*	59*	39*	58*	48

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Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	91	92	100	91	96	86*	92	88	78
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	64	68	80*	66	42*	58	81*	54*	63
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	80	69*	97*	77	58	74*	94*	85*	87

(continued)

Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
<i>Patient Engagement and Self-Management</i>									
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	63	72	55	69	54	69	52*	67	67
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	51	59*	48	50	38	59*	49	52	50
Involving patients and caregivers in health care decision-making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and teach-back techniques.	67	67	77*	62	62	73	60	73*	63

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Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
Patient self-management support for chronic conditions... Is provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	57	54	77*	52	27*	58	49	61*	74*
<i>Quality Improvement</i>									
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	81	82	97*	71*	54*	87*	90*	84	85
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	79	82	83	76	69	85*	81	82	70

(continued)

Table 3-8 (continued)
Percentage of MAPCP Demonstration provider survey respondents reporting a high level of adoption¹ of specific PCMH activities

Survey question ²	8-state average ³	New York ⁴	Rhode Island ⁵	Vermont ⁶	North Carolina ⁷	Minnesota ⁸	Maine ⁹	Michigan ¹⁰	Pennsylvania ¹¹
<i>Health IT</i>									
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	93	99*	94	84*	88	94	98*	94	96

NOTES:

¹ High-level adoption or implementation of a PCMH activity refers to selecting the third and most advanced answer option for a particular survey question.

² Text in table is third and most advanced answer option for each of the 23 PCMH survey questions in the provider survey.

³ Unweighted average of the state averages for the eight MAPCP Demonstration states, based on n = 1,022 completed provider surveys in these eight states.

⁴ Based on n = 82 completed provider surveys in New York.

⁵ Based on n = 33 completed provider surveys in Rhode Island.

⁶ Based on n = 126 completed provider surveys in Vermont.

⁷ Based on n = 26 completed provider surveys in North Carolina.

⁸ Based on n = 188 completed provider surveys in Minnesota.

⁹ Based on n = 90 completed provider surveys in Maine.

¹⁰ Based on n = 431 completed provider surveys in Michigan.

¹¹ Based on n = 46 completed provider surveys in Pennsylvania.

* Significantly different from the “All State” average at the 10 percent level.

EHR = electronic health record; ER = emergency room; IT = information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

3.4 Outcomes

3.4.1 Quality of Care, Patient Safety, and Health Outcomes

The goal of quality measurement and quality improvement initiatives is to improve health outcomes for all patients. In fact, four of the eight MAPCP Demonstration states (New York, Rhode Island, North Carolina, and Michigan) explicitly listed “improving patient outcomes” as a key objective for participation in their PCMH initiative. The other four states implied this in addition to other goals, such as reducing acute events (e.g., hospital or ER admissions).

Interviewees in most states provided anecdotes of how they implemented practice transformation activities to impact patient outcomes positively, including the increased use of health IT in the form of patient registries, quality measurement, and patient follow-up, especially after an acute event. Care coordination was mentioned as a key objective to align medical and nonmedical resources, such as nutrition education, fall prevention, and case management for those with diabetes or other chronic conditions, and more effectively attend to patient needs. All states mentioned the use of care managers or a care team to follow up with patients. Some teams met regularly to discuss their patient panel and specific quality improvement activities. The key patient safety effort mentioned across all MAPCP Demonstration states was medication management, which occurred after hospital discharge and continued in the form of patient education, titration, compliance, and using health IT to monitor drug interactions.

Nevertheless, an analysis of quality of care process measures and patient outcomes through Medicare and Medicaid claims data largely did not support the gains identified or forecasted by the interviewees. Our quantitative results showed:

- inconsistent or unfavorable results on the process of care metrics among Medicare beneficiaries;
- mostly mixed or unfavorable effects on process measures among Medicaid beneficiaries in all but two states (Minnesota and Michigan); and
- for patient outcomes, as proxied by preventable hospitalizations, only Pennsylvania had slightly more favorable results.

In **Tables 3-9** and **3-10**, we report the average effect for each of the eight demonstration states through December 2014 for process of care measures, including two diabetes composite measures for the Medicare and Medicaid populations. Using these process of care measures identifiable through Medicare or Medicaid claims, we examine the difference in probability of receiving care for beneficiaries assigned to the MAPCP Demonstration practices relative to beneficiaries assigned to PCMH and non-PCMH CG practices. The results associated with these indicators are interpreted as the percentage point difference in the probability of meeting the quality indicator across all demonstration years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care relative to the CG. A *positive* value corresponds to an *increase* in the likelihood of receiving care relative to the CG. MAPCP Demonstration beneficiaries are expected to have more positive values for all indicators, except the “none” indicator in diabetes care, relative to CG beneficiaries after the start of the demonstration.

First, we observed mixed findings in the Medicare population for process of care measures among the states. For diabetes management, we found little favorable impact from the demonstration on guideline-recommended tests or screenings when comparing demonstration practices to their non-PCMH CGs, with the exception of retinal eye examinations in New York and Minnesota. On the other hand, four of the eight states (Rhode Island, Vermont, Maine, and Pennsylvania) showed even more unfavorable results when comparing demonstration practices with other PCMH practices, suggesting that the recommended diabetes care was less likely to be provided by demonstration practices. We also observed similar unfavorable findings for ischemic vascular disease (IVD) care (using total lipid panel as a proxy) in Vermont, Minnesota, and Michigan when compared with non-PCMH CGs.

Second, the MAPCP Demonstration had mixed and unimpressive effects on quality of care among Medicaid beneficiaries in all but two states (Minnesota and Michigan). In Minnesota, Medicaid beneficiaries in demonstration practices had an increased likelihood of receiving evidence-based recommended care in three out of the four diabetes care metrics (appropriate use of antidepressant medications, appropriate adult use of asthma medications, and breast cancer screenings), compared with beneficiaries in non-PCMH practices. Medicaid beneficiaries in Michigan demonstration practices also had a higher likelihood of receiving three of the recommended diabetes care metrics relative to their PCMH CGs. Conversely, in Vermont, Medicaid adults with diabetes had a lower likelihood of low-density lipoprotein cholesterol (LDL-C) screening relative to both CGs, and a lower likelihood of appropriate use of asthma medications in adults compared with non-PCMH Medicaid beneficiaries, although the likelihood of appropriate use of antidepressant medication increased relative to the PCMH CG. Findings from the other states were either mixed or unfavorable for demonstration Medicaid beneficiaries. Medicaid beneficiaries in New York demonstration practices had an increased likelihood of cervical cancer screening relative to both CGs but showed insignificant impact in other process of care measures. Similarly, the likelihood of receiving two of the diabetes care metrics increased relative to the non-PCMH CG in Rhode Island, but impacts on the other process of care measures were insignificant. In North Carolina, there were decreased likelihoods of receiving recommended care among demonstration Medicaid beneficiaries for HbA1c testing, breast cancer screening, and appropriate adult use of asthma medications, but the likelihood of receiving a retinal eye exam increased relative to the non-PCMH CG. In Maine, demonstration beneficiaries were less likely to receive medical attention for nephropathy and more likely to receive none of the recommended diabetes care, but children in demonstration practices had solid gains in the appropriate use of asthma medication.

We also used preventable hospitalizations as proxies to patient outcomes. In **Table 3-11**, we report the average effect for each of the eight demonstration states through December 2014 for several outcome measures among the Medicare population, including one avoidable catastrophic medical event measure and three prevention quality composite indicators (otherwise considered as preventable hospitalizations). We examine covariate-adjusted differences in the rates of avoidable catastrophic events and Prevention Quality Indicator (PQI) admissions per 1,000 beneficiary quarters. Values for these measures correspond to the difference in rates of events for beneficiaries assigned to MAPCP Demonstration practices relative to beneficiaries assigned to PCMH and non-PCMH CG practices. A *negative* value corresponds to a *decrease* in the rate of events relative to the CG. A *positive* value corresponds to an *increase* in the rate of events relative to the CG. If the MAPCP Demonstration was associated with improvements in

the quality of and access to ambulatory care, we expect demonstration beneficiaries to have reduced rates (i.e., a significant negative value) for these avoidable hospitalizations relative to CG beneficiaries.

For our patient outcomes results, only Pennsylvania yielded significant desirable findings; that is, the demonstration practices in Pennsylvania had reduced rates of avoidable catastrophic events and both chronic and overall preventable hospital admissions when compared with other PCMH practices. Maine, North Carolina, and Vermont, in fact, saw increases in their rates of avoidable events relative to the non-PCMH CGs.

Table 3-9
Comparison of average Medicare and Medicaid effect estimates for process of care indicators

Outcome	HbA1c testing		Retinal eye examination		LDL-C screening		Medical attention for nephropathy	
	Medicare	Medicaid-adult	Medicare	Medicaid-adult	Medicare	Medicaid-adult	Medicare	Medicaid-adult
New York								
vs. PCMH CG	1.37	0.08	0.47	-11.37	0.21	2.94	-3.51	0.24
vs. non-PCMH CG	-0.02	1.34	3.36*	-5.88	2.10	3.33	1.89	0.90
Rhode Island								
vs. PCMH CG	3.43	-1.51	-2.61*	-18.74*	-0.16	1.16	-7.50*	-5.71*
vs. non-PCMH CG	5.81	7.93*	-1.31	-0.21	1.82	6.16*	-0.49	-3.55
Vermont								
vs. PCMH CG	-0.05	-0.97	-1.55	-4.37	-3.77*	-7.48*	-1.25	3.38
vs. non-PCMH CG	-0.86	-1.66	-0.77	-0.20	-0.36	-7.68*	0.35	-0.06
North Carolina								
vs. PCMH CG	0.08	4.87	-0.61	-1.60	0.45	-0.16	0.83	-0.09
vs. non-PCMH CG	0.68	-3.51*	0.08	8.92*	0.24	-2.99	2.93	-0.23
Minnesota								
vs. PCMH CG	—	—	—	—	—	—	—	—
vs. non-PCMH CG	0.22	11.41*	3.40*	-0.36	-0.06	16.10*	1.12	15.26*
Maine								
vs. PCMH CG	-1.39*	—	-0.68	—	-1.50	—	-0.34	—
vs. non-PCMH CG	0.73	-4.24	0.66	0.40	0.14	-2.94	-0.94	-8.56*
Michigan								
vs. PCMH CG	-0.25	14.55*	-0.20	-2.64*	0.25	10.65*	-0.16	6.88*
vs. non-PCMH CG	0.77	6.98	-0.28	-2.78	-2.49	5.66	-0.72	6.32*
Pennsylvania								
vs. PCMH CG	-0.15	N/A	-0.68	N/A	-0.47	N/A	-6.71*	N/A
vs. non-PCMH CG	0.44	N/A	0.23	N/A	0.44	N/A	-1.07	N/A

(continued)

Table 3-9 (continued)
Comparison of average Medicare and Medicaid effect estimates for process of care indicators

Outcome	Received all 4 diabetes tests		Received none of the 4 diabetes tests		Total lipid panel	
	Medicare	Medicaid adult	Medicare	Medicaid adult	Medicare	Medicaid adult
New York						
vs. PCMH CG	-1.30	-4.31	-0.27	0.13	0.09	—
vs. non-PCMH CG	1.95	1.95	-0.05	-0.13	0.12	—
Rhode Island						
vs. PCMH CG	-3.48*	-12.99*	0.36	-0.76	0.83	—
vs. non-PCMH CG	0.45	1.76	-1.42*	-0.33	-0.79	—
Vermont						
vs. PCMH CG	-2.83*	-1.32	-0.01	0.88	-2.06	—
vs. non-PCMH CG	0.57	1.13	0.27	0.28	-2.97*	—
North Carolina						
vs. PCMH CG	0.29	0.68	-0.08	0.00	1.29	—
vs. non-PCMH CG	0.53	5.19	-0.25	0.08	0.72	—
Minnesota						
vs. PCMH CG	—	—	—	—	—	—
vs. non-PCMH CG	3.06	2.31*	0.30	-5.60*	-2.11*	—
Maine						
vs. PCMH CG	-0.52	—	0.38	—	-0.44	—
vs. non-PCMH CG	-1.49	-2.15	-0.33	1.69*	-1.93	—
Michigan						
vs. PCMH CG	-0.01	5.04*	0.24	-6.16*	-1.24	—
vs. non-PCMH CG	-1.86	0.81	0.05	-3.58	-2.98*	—
Pennsylvania						
vs. PCMH CG	-6.24*	N/A	-0.17	N/A	0.05	—
vs. non-PCMH CG	-1.57	N/A	-0.16	N/A	-1.43	—

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = data not currently available because of Medicaid data limitations; PCMH = patient-centered medical home; — = not applicable.

* Statistically significant at the 10 percent level.

Table 3-10
Comparison of average Medicaid effect estimates for Medicaid-specific process of care indicators

Outcome	Cervical cancer screening	Breast cancer screening	Appropriate use of antidepressant medication (12 weeks)	Appropriate use of antidepressant medication (6 months)	Appropriate use of asthma medication	
	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid child
New York vs. PCMH CG	4.85*	3.03	-4.75	0.53	2.28	-6.06
vs. non-PCMH CG	5.02*	-0.03	-0.25	-2.57	-0.32	-3.67
Rhode Island vs. PCMH CG	-2.68	-0.11	-0.72	2.55	1.74	N/A
vs. non-PCMH CG	-0.66	3.23	-0.06	DNC	1.39	N/A
Vermont vs. PCMH CG	-0.43	1.07	3.08	7.38*	-1.59	-13.28
vs. non-PCMH CG	-1.50	0.88	1.03	0.79	-10.26*	-9.01
North Carolina vs. PCMH CG	-3.38	-5.85*	5.88	2.91	-4.11	7.76
vs. non-PCMH CG	-1.75	-6.84*	0.59	1.68	-7.23*	-4.37
Minnesota vs. PCMH CG	—	—	—	—	—	—
vs. non-PCMH CG	0.60	6.14*	3.21*	4.33*	3.45*	-2.19
Maine vs. PCMH CG	—	—	—	—	—	—
vs. non-PCMH CG	-0.86	0.89	-0.42	-0.72	3.57	11.22*
Michigan vs. PCMH CG	1.39	-1.29	-0.01	-0.64	-0.12	-0.33
vs. non-PCMH CG	-0.80	0.35	1.90	-2.41	-2.04	-2.80

(continued)

Table 3-10 (continued)
Comparison of average Medicaid effect estimates for Medicaid-specific process of care indicators

Outcome	Cervical cancer screening	Breast cancer screening	Appropriate use of antidepressant medication (12 weeks)	Appropriate use of antidepressant medication (6 months)	Appropriate use of asthma medication	
	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid adult	Medicaid child
Pennsylvania vs. PCMH CG	N/A	N/A	N/A	N/A	N/A	N/A
vs. non-PCMH CG	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.
- All but one quality measure applies to adults only, so Medicaid children are excluded from most measures in this table. Other measures only apply to the nonelderly population, so Medicare beneficiaries are excluded from some measures in this table.
- Minnesota does not have a PCMH CG because the HCH certification is so widespread that identifying sufficient numbers of non-HCH practices to create a PCMH CG is not possible.

CG = comparison group; DNC = regression model did not converge; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = data not currently available because of Medicaid data limitations PCMH = patient-centered medical home; — = not applicable.

* Statistically significant at the 10 percent level.

Table 3-11
Comparison of average effect estimates for health outcomes

Outcome	Avoidable catastrophic events ¹	PQI admissions—Overall ²	PQI admissions—Acute ³	PQI admissions—Chronic ⁴
	Medicare	Medicare	Medicare	Medicare
New York				
vs. PCMH CG	0.09	−0.72	−0.42	−0.29
vs. non-PCMH CG	−0.02	−0.65	−0.73	0.15
Rhode Island				
vs. PCMH CG	0.95	−0.80	0.03	−0.80
vs. non-PCMH CG	0.85	1.38	0.32	1.07
Vermont				
vs. PCMH CG	−0.76	0.91	0.60	0.45
vs. non-PCMH CG	0.12	1.55*	0.78*	0.82*
North Carolina				
vs. PCMH CG	−0.04	1.14	0.49	0.58
vs. non-PCMH CG	−0.20	1.48*	0.87*	0.65*
Minnesota				
vs. PCMH CG ⁵	—	—	—	—
vs. non-PCMH CG	0.23	0.27	0.08	0.24
Maine				
vs. PCMH CG	0.15	0.98	−0.43	1.33*
vs. non-PCMH CG	0.83*	1.10	0.36	0.86*
Michigan				
vs. PCMH CG	−0.59	−0.51	−0.57	0.09
vs. non-PCMH CG	−0.08	−0.22	−0.40	0.18

(continued)

Table 3-11 (continued)
Comparison of average effect estimates for health outcomes

Outcome	Avoidable catastrophic events ¹	PQI admissions—Overall ²	PQI admissions—Acute ³	PQI admissions—Chronic ⁴
	Medicare	Medicare	Medicare	Medicare
Pennsylvania vs. PCMH CG	–1.04*	–1.46*	–0.23	–1.20*
vs. non-PCMH CG	–0.03	–0.50	–0.20	–0.31

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Estimates in this table are interpreted as the difference in the rate of events among demonstration beneficiaries. It represents a weighted average of the differences observed in all quarters of the demonstration through December 2014. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

⁵ Minnesota does not have a PCMH CG because the HCH certification is so widespread that identifying sufficient numbers of non-HCH practices to create a PCMH CG is not possible.

CG = comparison group; COPD = chronic obstructive pulmonary disease; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator; — = not applicable.

* Statistically significant at the 10 percent level.

3.4.2 Access to Care and Coordination of Care

Improving access to care and coordination of care was a central focus of all eight state initiatives. In all states, participating practices had to meet expectations related to care access and coordination, through requirements to achieve some form of PCMH recognition (most commonly NCQA PCMH recognition) and, in some states, additional requirements. Every state incorporated nurse care managers or other care coordinators in its initiative. States varied in whether practices were required to hire the nurse care manager/care coordinator (Maine, Minnesota, Pennsylvania, Rhode Island) or whether they had the option of using shared care managers/care coordinators employed by an external organization (Michigan, New York, North Carolina). Maine also incorporated CCTs, which provided additional care management support to practices' most complex patients. Instead of using care managers, Vermont practices were required to enter into an agreement with their regional CHT, which offered care coordination and community resources; in addition, the SASH program offered care coordination to Medicare beneficiaries living in subsidized housing and nearby communities.

Over the 3 years of the MAPCP Demonstration, practices described initiatives to expand patient access, including open access scheduling, expanded hours, better after-hours coverage, improved telephone access, and Web-based patient portals. Care coordination, including targeting high-risk patients and patients discharged from the hospital, consistently was a priority for practices. Practices refined the roles of nurse care managers and other staff over the course of the demonstration, including defining staff roles and responsibilities more clearly, developing protocols to identify patients who would benefit most from care management, and improving coordination with external resources such as CCTs and CHTs. During Year Three in particular, practices and external care management organizations described improvements in information exchange with hospitals and other providers and more sophisticated data analytic capacity to identify patients needing care management. Practices in several states noted more frequent real-time notification of patient discharges and better communication with ERs.

Our quantitative analyses showed limited evidence of improvements in access to care or coordination of care. In most cases the results were not consistent for the two CGs and statistically significant evidence of improvement was equally likely to be found relative to the PCMH CG as to the non-PCMH. For outcomes that were measured for the three populations studied—Medicare, Medicaid adults, and Medicaid children—we did not observe consistent patterns of improvement across the populations within a state. Overall, our quantitative analyses found:

- Increases in the primary care visit rate for Medicare beneficiaries in Rhode Island, for Medicaid adult beneficiaries in New York and Minnesota, and for Medicaid child beneficiaries in New York;
- Reductions in unplanned readmissions within 30 days after hospital discharge for Medicare beneficiaries in Michigan;
- Increases in the rate of follow-up visits within 14 days after hospital discharge for Medicare beneficiaries in Michigan and Pennsylvania; and

- Increases in continuity of care for the Medicare population in Rhode Island, Vermont, Maine, and Pennsylvania.

There was statistically significant evidence of improvement for each outcome studied in at least one state for the Medicare population. For the Medicare population, MAPCP Demonstration practices were most likely to show improved performance for continuity of care, with a significant impact in the expected direction for one of the CGs in four states. Although the MAPCP Demonstration was associated with a significant increase in the primary care visit rate for the Medicare population in only Rhode Island Vermont and North Carolina both had significant reductions in the medical specialist visit rate relative to the non-PCMH CG. Although there were significant changes in the surgical specialist visit rate in three states, New York was the only state with a reduction in the visit rate, whereas North Carolina and Michigan each had an increase. Only Vermont had a significant reduction in the specialist visit rate.

For Medicaid, in New York, the MAPCP Demonstration significantly increased the primary care visit rate for adults and children relative to both the PCMH and non-PCMH CGs. There were corresponding reductions in medical and surgical specialist visit rates for Medicaid adults in New York, and primary care visits increased as a share of total visits for this population. The primary care visit rate also increased significantly for Medicaid adults in Minnesota. In Michigan, however, we found significant reductions in the primary care visit rate for Medicaid adults and children, and reductions in primary care physician visits as a percentage of total visits for Medicaid adults. Likewise, the primary care visit rate fell significantly for Medicaid adults in Pennsylvania, although primary care visits grew as a percentage of total visits relative to the PCMH CG. Not all outcomes were analyzed for Medicaid adults and children. Among the outcomes analyzed for Medicaid adult beneficiaries, none of the eight states had a reduction in 30-day unplanned readmissions for Medicaid adults. Among the outcomes analyzed for Medicaid child beneficiaries, we did not find statistically significant reductions in the medical specialist or surgical visit specialist visit rate in any of the states. Overall, most of the evidence of improvement in the Medicaid population was found in New York.

Although increasing access to appointments was a central goal of PCMHs in all states, we generally did not find increases in primary care visit rates relative to CG practices and Michigan and Pennsylvania had statistically significant reductions in the Medicaid population. Practices generally found it less difficult over time to staff extended hours, but, even in Year Three, some practices reported difficulties. Some practices described ongoing challenges in educating patients about the availability of expanded access and in changing patient habits of seeking care through ERs even when extended hours and after-hours coverage were available. MAPCP Demonstration practices made greater use of contacts by telephone, e-mail, or through a patient portal to increase access, but these types of contacts cannot be observed in claims data. Furthermore, in some cases, initiatives to expand access preceded the demonstration so we would not necessarily observe a change from the baseline period. More intensive care management and greater focus on patient self-management of their conditions also could offset improvements in access to primary care services. The increased rates of medical or surgical specialist visits relative to CG practices for at least one of the three populations in Rhode Island, North Carolina, Minnesota, Michigan and Pennsylvania was contrary to expectations, but it is possible that demonstration practices facilitated access to these providers and reduced barriers to needed care.

Improvements in continuity of care for the Medicare population in half of the states likely reflected care managers' responsibilities for increasing coordination with specialists, particularly for high-risk patients. The limited evidence of improvements in 14-day follow-up visit rates or reductions in unplanned readmissions may reflect widely reported challenges managing care transitions from the hospital to the community, as a result of poor communication between practices and hospitals, particularly in the first 2 years of the demonstration. Lack of improvement in the 14-day follow-up visit rate in some states also may reflect the greater use of alternatives to face-to-face visits for patient contacts.

Table 3-12 reports the covariate-adjusted differences in change for each of the eight states during the MAPCP Demonstration through December 2014 for seven outcomes that are indicators of access to and coordination of care, comparing beneficiaries assigned to MAPCP Demonstration practices with beneficiaries assigned to PCMH and non-PCMH CG practices. Results for five measures are reported for both the Medicare and Medicaid populations. Medicaid results are reported separately for adults and children, but two measures (primary care visits as a percentage of total visits and 30-day unplanned readmissions) are not reported for children because of the low rate of specialist visits and hospital readmissions in this population. Two measures were not calculated for either adults or children in the Medicaid population (follow-up visits within 14 days after discharge and the Continuity of Care [COC] Index). For some states, additional measures could not be calculated for the Medicaid population because of limitations in the state's Medicaid data.

The first four measures address utilization of primary care and specialist services. Demonstration beneficiaries are expected to increase their utilization of primary care services and decrease their utilization of specialist services relative to CG beneficiaries after the start of the demonstration. We look at the quarterly rate of primary care ambulatory visits per 1,000 beneficiary quarters, as well as ambulatory care visit rates for medical specialists and surgical specialists. To account for possible changes in the overall visit rate, for example, if the demonstration is associated with reductions in both primary care and specialist visit rates, we also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services. Demonstration beneficiaries are expected to have higher percentages of primary care visits.

We analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge, both expressed per 1,000 beneficiaries with a live discharge during the quarter. The MAPCP Demonstration is expected to increase the follow-up visit rate and reduce the unplanned readmission rate.

Finally, we assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from

0 to 1. MAPCP Demonstration beneficiaries are expected to have higher values on the COC Index relative to the CG.

With the exception of primary care visits as a percentage of total ambulatory care visits and the COC Index, all outcomes reported are rates of events. Estimates for these outcomes are interpreted as the difference in the rate of events associated with the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events relative to the CG, whereas a *positive* value corresponds to an *increase* in the rate relative to the CG.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC Index are categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. MAPCP Demonstration beneficiaries are expected to have a primary care visit percentage and COC Index more likely to be in the fifth quintile and less likely to be in the first quintile. These outcomes were modeled using ordered logit analysis. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the highest and lowest quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile relative to the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile relative to the CG.

Among adult Medicaid beneficiaries, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, and exactly 100 percent of visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in each category. A *positive* value corresponds to an *increase* relative to the CG in the likelihood of observing a value in the category, whereas a *negative* value corresponds to a *decrease* relative to the CG in the likelihood of observing a value in the category.

Table 3-12
Comparison of average changes for access to care and coordination of care

Outcome	Primary care visits			Medical specialist visits			Surgical specialist visits		
	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child
New York									
vs. PCMH CG	-14.59	6.60*	6.98*	-20.69	-2.32*	-0.10	10.29	-0.60	-0.34
vs. non-PCMH CG	-4.17	5.50*	6.00*	-19.31	-1.21*	0.59	9.40	-1.31*	DNC
Rhode Island									
vs. PCMH CG	74.58*	0.47	—	19.95	0.45	—	9.00	0.31	—
vs. non-PCMH CG	29.76	0.71	—	-20.19	1.31*	—	8.79	0.46	—
Vermont									
vs. PCMH CG	-7.62	N/A	N/A	-14.52	N/A	N/A	-21.55*	N/A	N/A
vs. non-PCMH CG	-26.85	N/A	N/A	-58.23*	N/A	N/A	-16.43*	N/A	N/A
North Carolina									
vs. PCMH CG	-11.70	-0.44	1.83	-16.68	0.93	0.37	28.89*	1.76	0.23
vs. non-PCMH CG	23.10	0.53	1.40	-33.49*	-0.85	-0.06	30.65*	1.72*	0.50
Minnesota									
vs. PCMH CG	—	—	—	—	—	—	—	—	—
vs. non-PCMH CG	26.56	2.46*	-0.39	0.38	1.55*	0.37*	-6.51	0.26*	-0.01
Maine									
vs. PCMH CG	16.71	—	—	-31.28	—	—	-1.00	—	—
vs. non-PCMH CG	59.36	3.05	0.10	-14.29	0.51	0.34	9.13	0.54	0.10
Michigan									
vs. PCMH CG	8.95	-3.28*	-0.69	-12.20	0.67	1.25*	6.46	-0.36	-0.05
vs. non-PCMH CG	-32.75	-1.24	-2.26*	-32.82	0.05	1.14	9.92*	0.41	0.06
Pennsylvania									
vs. PCMH CG	27.53	-8.29*	0.73	-4.24	-3.02	0.99*	-1.36	-0.44	0.10*
vs. non-PCMH CG	35.92	DNC	-1.44	-21.67	-1.25	0.37	-5.86	0.16	0.00

(continued)

Table 3-12 (continued)
Comparison of average changes for access to care and coordination of care

Outcome	Primary care visits as a percentage of total visits— Medicare		Primary care visits as a percentage of total visits—Medicaid adults			Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)
	1st quintile	5th quintile	Less than 70%	Between 70% and 100%	Equal to 100%	Medicare
New York vs. PCMH CG	2.04	-0.95	-11.96*	1.16*	10.80*	-4.71
vs. non-PCMH CG	0.85	-0.37	-8.98*	-0.46	9.44*	-14.41
Rhode Island vs. PCMH CG	-1.30	0.88	1.95	0.15	-2.10	18.26
vs. non-PCMH CG	-1.56	1.14	1.97	0.59	-2.56	-3.12
Vermont vs. PCMH CG	-1.59	1.06	N/A	N/A	N/A	-1.34
vs. non-PCMH CG	-1.99	1.31	N/A	N/A	N/A	-33.42
North Carolina vs. PCMH CG	-1.22	1.03	2.16	-0.28	-1.88	6.85
vs. non-PCMH CG	-1.62	1.59	-0.67	-0.05	0.72	-0.66
Minnesota vs. PCMH CG	—	—	—	—	—	—
vs. non-PCMH CG	-0.99	1.02	0.29	-0.17	-0.13	-8.03
Maine vs. PCMH CG	-1.18	0.88	—	—	—	-73.44*
vs. non-PCMH CG	-1.65	1.34	-1.96	0.09	1.87	15.29
Michigan vs. PCMH CG	-0.05	0.03	3.19*	0.54	-3.73*	38.89*
vs. non-PCMH CG	0.45	-0.41	2.43	0.31	-2.74	12.85
Pennsylvania vs. PCMH CG	-0.01	0.05	-9.16*	2.56*	6.60*	57.38*
vs. non-PCMH CG	-1.02	0.92*	1.44	-0.24	-1.20	34.37*

(continued)

Table 3-12 (continued)
Comparison of average changes for access to care and coordination of care

Outcome	30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		COC Index (higher quintile = better COC) 1st quintile	COC Index (higher quintile = better COC) 5th quintile
	Medicare	Medicaid adult	Medicare	Medicare
New York vs. PCMH CG	-14.22	0.05	4.20*	-3.64*
vs. non-PCMH CG	-11.34	0.11	1.84	-1.45
Rhode Island vs. PCMH CG	-9.33	-1.25	-3.90*	3.63*
vs. non-PCMH CG	26.67*	0.50	-0.97	1.02
Vermont vs. PCMH CG	-20.10	2.13*	-1.81	1.66
vs. non-PCMH CG	-0.80	2.18*	-2.65*	2.43*
North Carolina vs. PCMH CG	8.60	1.57	0.24	-0.33
vs. non-PCMH CG	8.06	0.19	-0.30	0.29
Minnesota vs. PCMH CG	—	—	—	—
vs. non-PCMH CG	-18.93	0.36	-0.74	0.74
Maine vs. PCMH CG	-45.68	—	-3.07*	2.51*
vs. non-PCMH CG	4.55	-2.18	-0.72	0.64
Michigan vs. PCMH CG	-23.49*	0.29	-0.78	0.81
vs. non-PCMH CG	-9.67	-0.82	-1.05	1.18

(continued)

Table 3-12 (continued)
Comparison of average changes for access to care and coordination of care

Outcome	30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		COC Index (higher quintile = better COC) 1st quintile	COC Index (higher quintile = better COC) 5th quintile
	Medicare	Medicaid adult	Medicare	Medicare
Pennsylvania vs. PCMH CG	-1.98	1.46	-0.97	1.06
vs. non-PCMH CG	-0.87	0.70	-1.84*	1.97*

NOTES:

- For Medicare, office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. For Medicaid, office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits and the COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- For Medicare, estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events relative to the CG. A *positive* value corresponds to an *increase* in the rate of events relative to the CG. For Medicaid, estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events relative to the CG. A *positive* value corresponds to an *increase* in the likelihood of events relative to the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference among MAPCP Demonstration beneficiaries in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution across the demonstration overall. A *negative* value corresponds to a *decrease* relative to the CG in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile. A *positive* value corresponds to an *increase* relative to the CG in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to the demonstration practices in each quarter divided by the total number of beneficiaries attributed during the year(s).
- The COC Index and follow-up visits within 14 days after discharge were analyzed for Medicare only.
- Given the low frequency of inpatient readmissions in children, this measure was not calculated for children enrolled in Medicaid.
- Minnesota does not have a PCMH CG because the HCH certification is so widespread that identifying sufficient numbers of non-HCH practices to create a PCMH CG is not possible.

CG = comparison group; COC = Continuity of Care; DNC = regression model did not converge; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = data not currently available because of Medicaid data limitations; PCMH = patient-centered medical home; — = not applicable.

* Statistically significant at the 10 percent level.

3.4.3 Beneficiary Experience with Care

Findings from annual site visits. During annual site visits with care providers at MAPCP Demonstration practices, the evaluation staff collected information about key activities that might influence patient experience with care outcomes. Interview respondents described a similar core set of program activities, although the emphasis on these activities varied by practice and by state. All states mentioned self-management programs for chronic conditions, care coordination, assistance with care transitions, improving communication with health care providers, and increasing feedback to patients about their health status. Shared decision-making was another core feature, but there appeared to be greater state-to-state variation in the extent to which practices emphasized this activity than there was for other activities. Four demonstration states (Maine, Michigan, Minnesota, and Rhode Island) established patient advisory councils to increase patient communication with providers, although the Rhode Island program was terminated in Year Three due to a lack of patient interest.

The evolution of the state initiative activities followed a similar pattern across the 3 years of MAPCP Demonstration intervention. Year One largely was characterized by working out the roles of care managers and providers, training staff, designing the content of the self-management programs, and offering the initial set of services. During Year Two, the above key activities were refined and expanded, and services were delivered to more patients. The content of the self-management programs was revised and extended to additional chronic conditions. Additional training, such as motivational interviewing techniques, was provided to care managers. Greater emphasis was placed on coordinating care with specialists.

In Year Three, additional refinements were made to the state initiatives. Some practices began to use risk assessments and panel management to target patients with the greatest needs. Practices also gave greater attention to areas such as medication management and referrals to community resources. In many practices, patient portals, feedback reports, and health IT systems did not become fully operational until the third year. By the end of Year Three, however, all states appear to have implemented intended activities to an extent that might be noticed by patients and reflected in findings from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey or beneficiary focus groups.

Findings from the CAHPS PCMH Survey and beneficiary focus groups. To provide a comprehensive assessment of patients' care experiences, we synthesized data from two sources. First, we administered a standardized survey, the CAHPS PCMH, to a random sample of the Medicare demonstration beneficiaries in seven MAPCP Demonstration states (all except Rhode Island) during May and June 2014.¹¹ Second, we conducted focus groups with Medicare, Medicaid, dually eligible beneficiaries, and caregivers between July and November 2014. The focus group data provide more detailed information about beneficiaries' perspectives on the care that they are receiving.

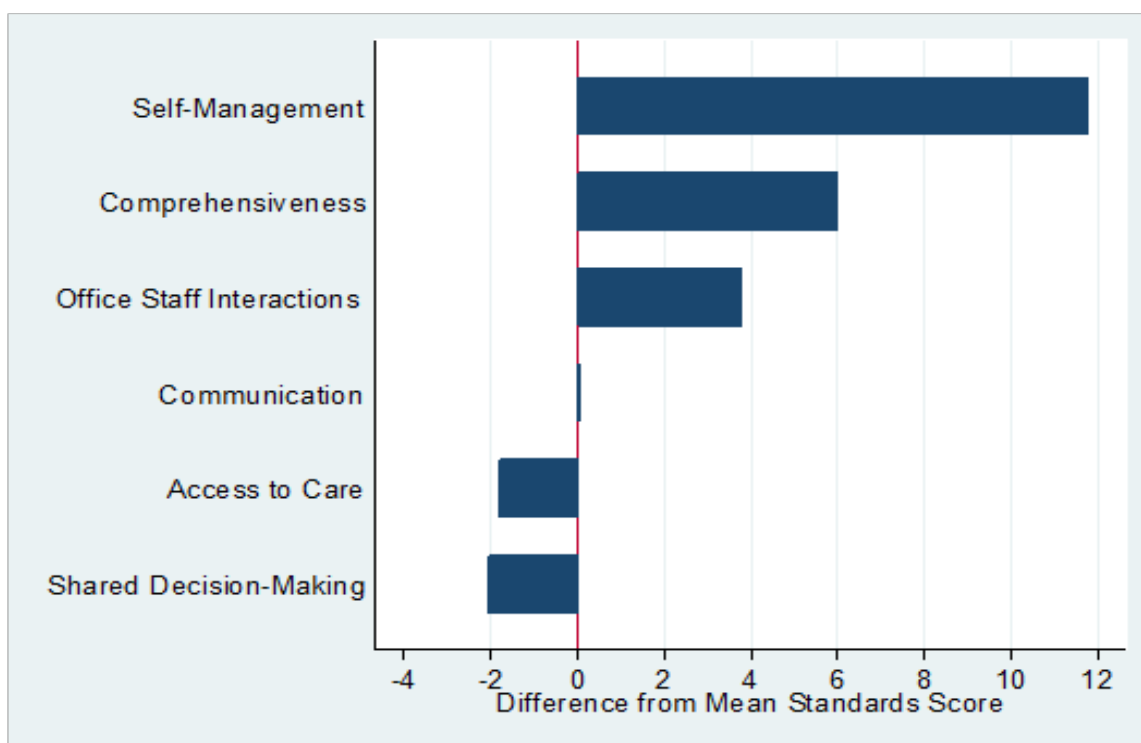
¹¹ Concerns about respondent burden in Rhode Island forced us to rely on a previously completed survey for that state by a different survey vendor. The Rhode Island survey had methodological differences that may have introduced some bias into its results, compared with the other states. It is unclear whether these differences would tend to bias the results upward or downward. To reduce any bias, we removed telephone interviews and respondents under 65 years of age from the sample.

The CAHPS PCMH survey focused on six key domains of patient experience: self-management, comprehensiveness (having a whole-person orientation that helps patients deal with stress, depression, and family problems), interactions with office staff, communication with providers, access to care, and shared decision-making. **Figure 3-1** presents a comparison between CAHPS PCMH survey domain scores for MAPCP Demonstration beneficiaries and the average results from two other databases. These comparisons do not necessarily indicate that MAPCP Demonstration states are doing better in some domains than others—simply that in some domains, they are doing better relative to the comparison standards than in other domains.

Key findings from the survey and focus groups include the following:

- The MAPCP Demonstration states achieved considerably higher scores than comparisons (12 points on a 100-point scale) for the Self-Management domain. Many focus group participants said that their provider had talked to them about things they can do to improve their health, but few had set specific goals, and almost none had written care plans.
- MAPCP Demonstration state scores were 4 to 6 points higher for Comprehensiveness and for interactions with office staff. The focus groups did not specifically ask about comprehensiveness of care, but many participants noted that their providers knew about stresses and other factors in their lives that could affect their health.
- There was no difference between demonstration and comparison survey respondents with respect to communication with their providers. Most focus group participants were very positive about the quality of care they received, however. They felt that communication with their providers was good (they could understand them, did not feel rushed, and felt that their providers knew them and their health issues); office staff were friendly, efficient, and courteous; and their providers engaged in shared decision-making, respecting their opinions and preferences. Some participants, however, had less positive views: They reported feeling rushed when they talked to their provider, that office staff were rude and inefficient, or that their providers did not take their health concerns seriously. In general, Medicaid and dually eligible beneficiaries had less positive experiences with care than Medicare beneficiaries.
- The demonstration states slightly underperformed (by about 2 points) the comparison standards for Access to Care and Shared Decision-Making. Focus group perspectives on access to care was mixed: Most participants reported that wait times were very short, and they had no difficulty scheduling a routine appointment, but getting an appointment for an urgent need could be more difficult. Some participants reported having to use the ER for health needs that arose outside of their practice's office hours. Most focus group participants thought that their relationship with their PCPs was a partnership, and that their PCPs respected their opinions and preferences and involved them in making decisions about their treatment.

Figure 3-1
CAHPS PCMH survey domain scores for MAPCP Demonstration beneficiaries compared with average results from two databases



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

The focus groups also asked participants about coordination of care, which is a topic not included in the CAHPS PCMH survey. Few focus group participants had a care manager; those who did were primarily Medicaid and dually eligible beneficiaries. Participants who had a care manager were generally very happy with the support they received. Nearly all participants said that the transfer of information between their PCP, hospitals, and specialists had greatly improved since their practices had changed to EHRs, although some commented that the transfer did not work as well if their PCP was in a different system from the hospital or specialist. Some participants also noted that although the information transferred, that did not necessarily mean that their PCP was actively coordinating their care; some caregivers in particular felt that they were still the ones responsible for ensuring coordination of care.

Patient awareness of changes. Because survey and focus group data were collected at just one point in time near the end of Year Three of the demonstration, it is difficult to assess how patient care may have changed over time as a result of the activities conducted by participating practices. Focus group participants were, however, asked to identify any changes they had observed in the past few years.

Almost no participants were aware that their primary care practice was participating in a PCMH initiative. As a result, they were unable to comment on the effects of the program. They were, however, able to comment on changes that they perceived as occurring in recent years,

which may or may not be attributable to the demonstration. The primary change noticed by nearly all participants was the conversion to EHRs. Participants felt that this significantly improved coordination among hospitals, specialists, and their PCPs; helped to ensure that their PCP remembered all of their medical information; facilitated filling prescriptions; and shortened the wait time for getting test results. Many patients also commented that they had started receiving a printout at the end of their appointments summarizing key information, which most appreciated. One drawback that some participants mentioned was that their PCPs were now typing on the computer during their time with them, and they felt that this made for less personal communication. The existence of a patient portal was another change noted by many participants. Most participants had not used it, and some were not interested in using it, but most of those who had used it found it very helpful.

Other than the changes related to EHRs, most participants did not notice any changes at their practices. Some participants thought that wait times had become shorter in recent years, and some commented that it was new that the front desk staff would schedule an appointment with a specialist for them before they left the office. Participants in a few groups said that office staff were friendlier and more efficient than in the past. A few participants commented that they thought it was easier to get a referral than in the past, which most appreciated, but some wished that their PCP would provide more actual care so that they would not have to make additional trips to have their problems addressed. Several participants, particularly dually eligible participants, said that their PCPs were less willing to give them pain medication than in the past. Participants in several groups noted that it has become the norm in their local hospitals for hospitalists to provide the care, and they can no longer see their PCP in the hospital. Other changes mentioned by a small number of participants were high turnover in staff, more emphasis on preventive care, suggestions for resources such as dietitians, expanded hours, addition of same-day or walk-in appointments, and addition of screening questions related to depression and prevention of falls.

Variation in performance across states. Data from the CAHPS survey indicated that two states, Vermont and Rhode Island, did especially well. None of the domain results for these states were significantly lower than the values for the comparison data. North Carolina had the poorest relative performance, with four outcomes significantly lower than the comparison values. Cross-state comparisons are more difficult to make using the focus group data, but in the focus group data, North Carolina also stood out as the state where beneficiaries had the most negative experiences with care.

Detailed findings by experience of care domains. In this section, we provide detailed findings from the CAHPS PCMH survey and focus groups. For each of the six key experience of care domains in the CAHPS PCMH survey, we present the state-specific survey results and then provide commentary on related issues drawn from the focus groups. Survey procedures and a description of the six composite scales measured by the survey have been presented in *Section 1.4*. Detailed methodology for the focus groups is presented in *Appendix O*.

The CAHPS PCMH survey composite results are summarized in *Figures 3-2* through *3-8*. In these figures, the mean composite score for each state is represented by a diamond. Whiskers extending on either side of the diamond show the 90 percent confidence interval for the estimated mean. We used two other large databases as comparators: the Massachusetts

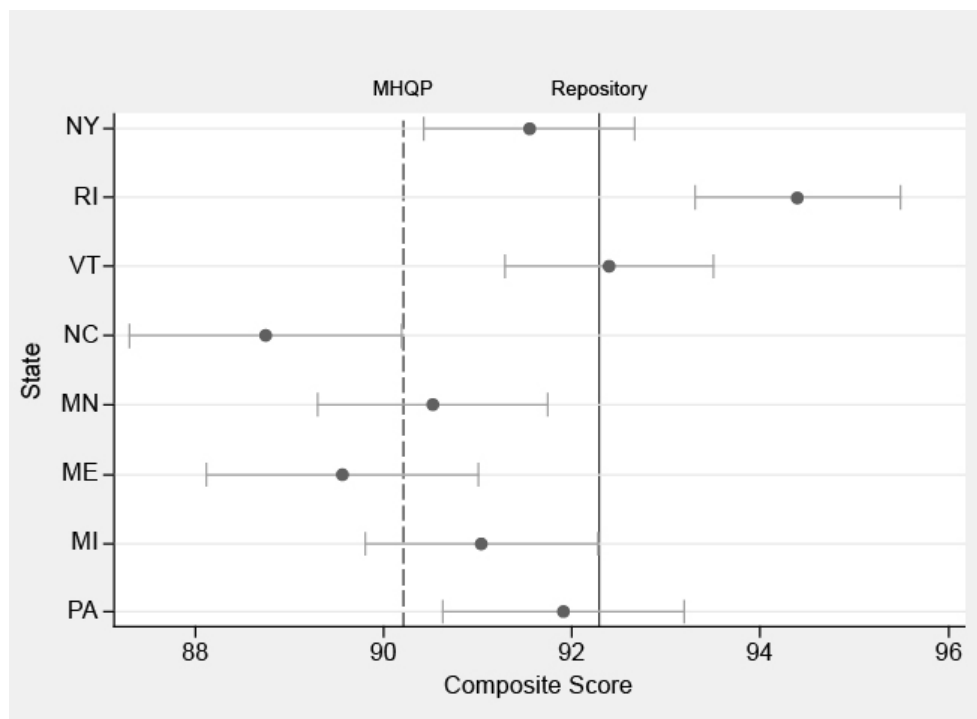
Health Quality Partners (MHQP) and the National CAHPS Database. We selected these comparators because they were the largest studies available that occurred around the same time as our survey of MAPCP Demonstration Medicare beneficiaries. The samples for the MHQP and CAHPS Database differ from the demonstration survey in that they reflect the entire adult population receiving care at the cooperating medical practices, rather than only Medicare beneficiaries. The CAHPS Database consists of plans that voluntarily chose to share their data and has composite means consistently higher than the MHQP. In the figures, two vertical lines indicate the mean composite results for each of the comparators: a dotted line for the MHQP and a solid line for the CAHPS Database. In each figure, a state-specific mean is not statistically significantly different from a comparison standard's mean if the confidence interval overlaps the line for the standard value.

Quality of care. Communication. In the CAHPS PCMH survey, patients were asked a series of questions about communication with their providers, including how often their provider:

- Knew the important information from their medical history;
- Listened carefully to them;
- Showed respect for what they had to say;
- Explained things in a way that was easy to understand;
- Gave easy-to-understand information in response to their questions or concerns; and
- Spent enough time with them.

Their responses to these questions were aggregated into a communication composite score. Across states, the communication composite scores were uniformly high within a narrow range from 88.8 to 94.4 (**Figure 3-2**). Rhode Island's score was significantly higher than the CAHPS Database mean. Confidence intervals for the remaining states (Michigan, New York, Pennsylvania, Minnesota, Maine, North Carolina, and Vermont) overlapped the means for at least one of the standards. Vermont and Pennsylvania overlapped the CAHPS Database mean, and Minnesota, Maine, Michigan, and North Carolina overlapped the MHQP mean.

Figure 3-2
Mean communication composite score (and 90% confidence interval) by
MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

Focus group data show that most participants thought that their communication with their PCP was good. Most felt that their PCP listened carefully to them and explained things thoroughly and in terms they understood. Nearly all participants said that if their PCPs said something they did not understand, they simply asked them to “break it down” for them. North Carolina is the only state where any participants said they had not understood what their PCP was saying and did not get clarification. A few participants in Michigan, New York, and North Carolina mentioned having providers with accents that were difficult to understand. Most participants felt that their PCP spent as much time as they needed to address all of their concerns, but some reported feeling rushed, and some complained that their PCP allowed them to discuss only one or two concerns per appointment. Some thought the time constraints were new; one said she had heard that her practice had gotten strict lately about how much time providers can spend with patients.

Most participants felt that their PCP knew the important information from their medical history, although many noted that this could be attributed largely to the fact that they had access to all of their medical records on the computer. As one participant said, “My doctor’s computer knows me.” Some participants had recently changed PCPs and did not feel that their new PCP knew their medical history well yet. Some participants commented that there was considerable turnover of providers in their area, so it was difficult to keep a PCP long enough for the PCP to get to know them; others had been with the same PCP for decades.

To some degree, participants' experiences varied by participant type. In North Carolina, Rhode Island, and Pennsylvania, Medicaid and dually eligible participants tended to have more complaints than did Medicare participants about communication with their PCP, including feeling that their PCP rushed them, did not address their emotional or mental health needs, or made assumptions about their needs. Most caregivers were satisfied with their communication with the PCPs, but some were frustrated because the PCP did not adequately include them in discussions, or because the practice would contact the patient, but not the caregiver, with test results or to schedule appointments.

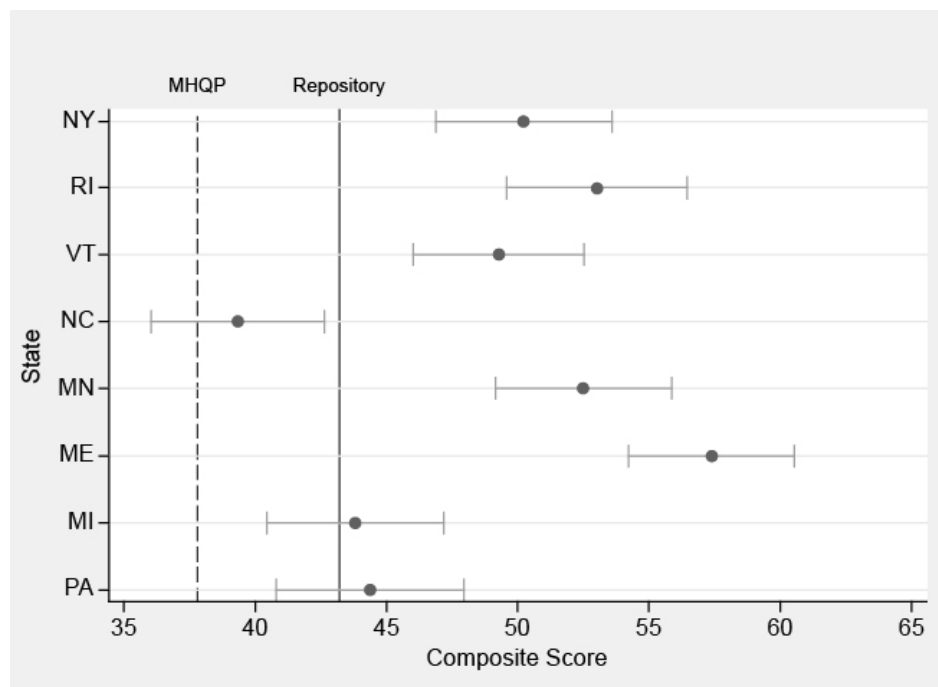
One negative change in communication in recent years, identified by many participants, is that the PCP is now typing on the computer while talking to the patients, which reduces eye contact and disrupts the flow of conversation. Most felt, however, that the benefits of having EHRs outweighed the disadvantages. A positive change that many participants noticed is that they have started receiving a printout at the end of their appointment that summarizes everything discussed, instructions, and their next appointment, and nearly all found this helpful.

Comprehensiveness/behavioral/whole-person orientation. In the CAHPS PCMH survey, patients were asked three questions about the comprehensiveness of their care. Specifically, they were asked if anyone in the provider's office had:

- Asked if they had felt sad, empty, or depressed;
- Talked about worrying/stressful aspects of their life; and
- Talked with patient about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

MAPCP Demonstration states performed well on this composite, with five states (Rhode Island, Maine, Minnesota, New York, and Vermont) significantly exceeding both the MHQP and the CAHPS Database value (**Figure 3-3**). Two states (Michigan and Pennsylvania) exceed the MHQP and were comparable to the CAHPS Database value, and one state (North Carolina) was comparable to the MHQP and below the CAHPS Database value.

Figure 3-3
Mean comprehensiveness composite score (and 90% confidence interval) by
MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

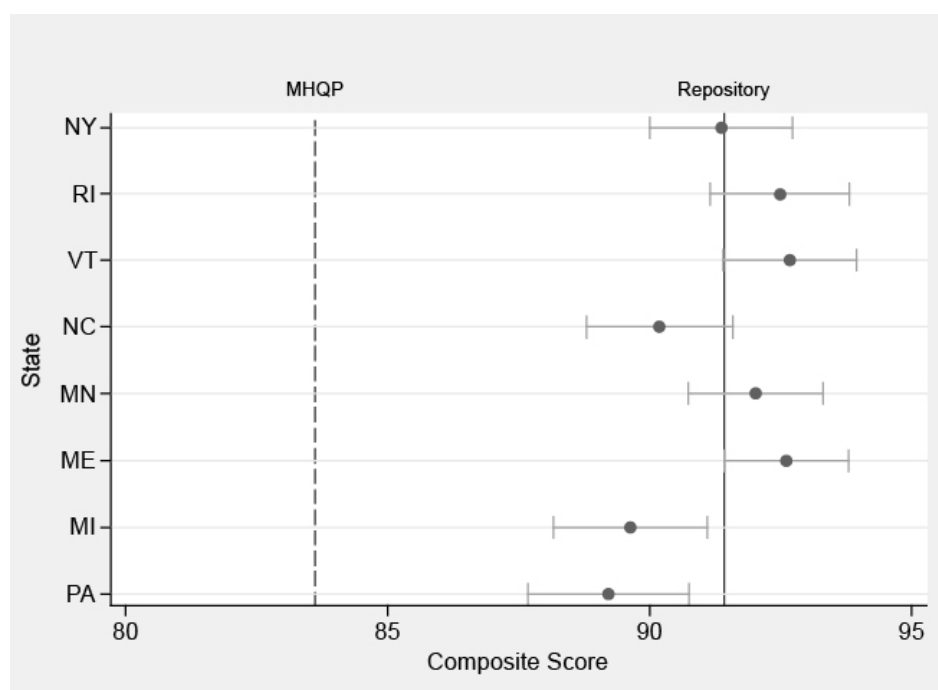
The focus groups did not specifically address these questions, but most participants felt that their PCPs knew them as people, including details about their lives and families. A few participants mentioned that their PCPs were aware of stressful circumstances in their lives and checked in with them regularly to make sure they were doing well. A few with serious health problems also said that their PCPs supported them emotionally, trying to help them keep a positive frame of mind. As described in the previous section, however, a few participants mentioned being allowed to discuss only one or two concerns (which would presumably preclude delving into topics related to their mental health or life circumstances), and one commented that her provider does not have time to address her mental health issues, even though she felt like they were affecting her physical health. Some participants reported that their providers used depression screeners, and a few said their PCPs had referred them to a counselor for stress or depression. Most participants who were seeing a mental health professional, however, said that there was no coordination between their PCP and mental health care provider, and those taking drugs prescribed by their mental health care provider typically were responsible for informing their PCP themselves about their medications. A few participants said that their PCP doubled as their psychiatrist, managing their mental health drugs.

Office staff interactions. In the CAHPS PCMH survey, patients were asked two questions about office staff. They were asked how often clerks and receptionists at this provider's office:

- Were as helpful as you thought they should be; and
- Treated you with courtesy and respect.

All MAPCP Demonstration states achieved scores of 89.2 or higher on this composite (**Figure 3-4**). Scores were substantially above the MHQP standard, and only two states (Pennsylvania and Michigan) had values significantly below the CAHPS Database standard of 91.4.

Figure 3-4
Mean office staff composite score (and 90% confidence interval) by
MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

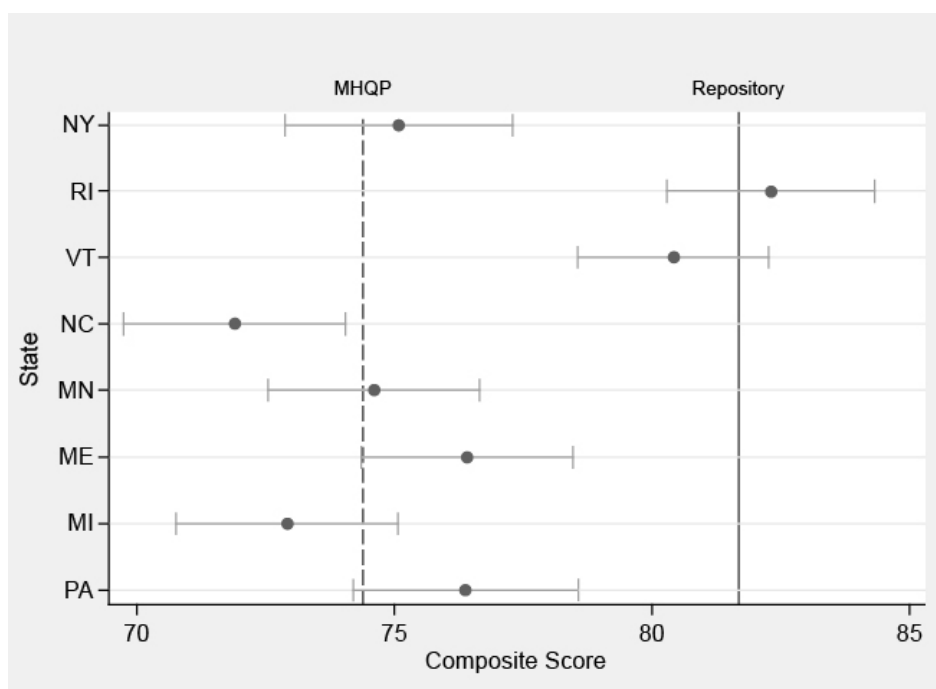
Most focus group participants were happy with the office staff at their practice, describing them as friendly, helpful, professional, courteous, and efficient. Some said that the staff know them by name. Participants in a few groups thought that the office staff had improved in recent years: Participants in one Maine group said their practice had “gotten rid of all the snippy staff,” and participants in a few groups said that they feel the practice is being run in a more businesslike way. Most found this businesslike approach to be an improvement, but one participant said he did not like it, because it feels more impersonal. Only a few participants had complaints about the office staff, including that they were rude, inefficient, did not respect confidentiality, and did not transmit messages to their PCPs or made it difficult to reach the PCP. Medicaid and dually eligible participants tended to have more negative experiences with the office staff than other participants, particularly in North Carolina, Pennsylvania, and one practice in Michigan. In North Carolina, some Medicaid and dually eligible participants complained of office staff being unprofessional, laughing and talking about their vacations. In Pennsylvania and Michigan, Medicaid participants described problems such as not getting their calls returned, difficulties in getting prescriptions renewed, and staff being rude and “acting like they are doing you a favor by taking your Medicaid.”

Access to care. In the CAHPS PCMH survey, patients were asked a series of questions about their access to care, including how often:

- They were able to get an appointment for care that they needed right away;
- They were able to make an appointment for a checkup or routine care as soon as they needed;
- They got answers to medical questions about which they called their practice during office hours;
- They got answers to medical questions about which they called their practice after office hours; and
- Their appointment began within 15 minutes of its scheduled start time.

Their responses to these questions were aggregated into an access composite score. As shown in **Figure 3-5**, two states, Rhode Island and Vermont, had access scores comparable to the CAHPS Database average. Scores for the remaining states, except North Carolina, were all significantly lower than the CAHPS Database average but were comparable to the MHQP. North Carolina fell below both the CAHPS Database average and the MHQP standard.

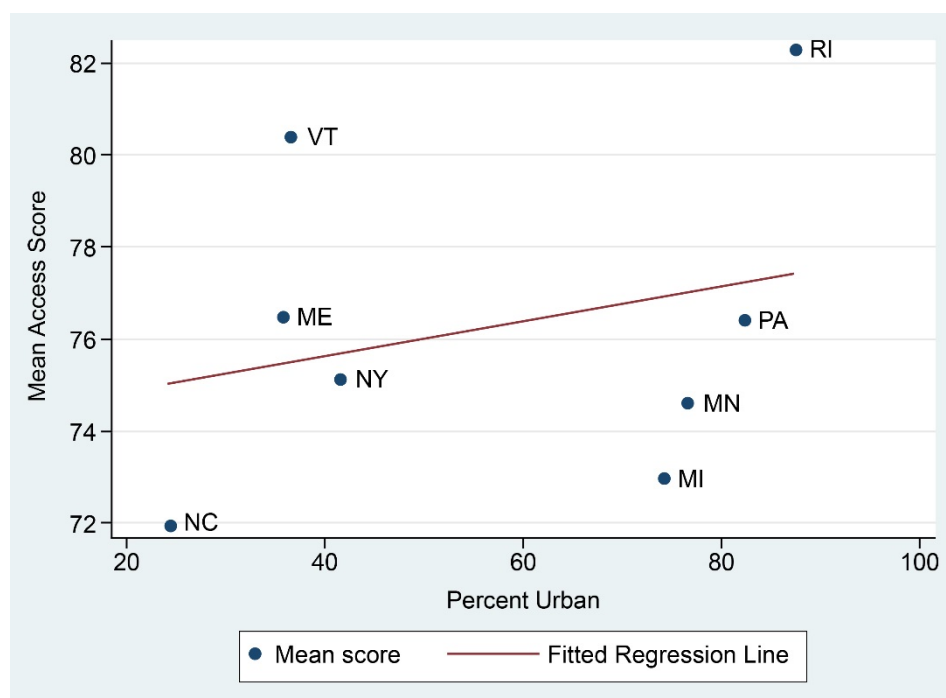
Figure 3-5
Mean access composite score (and 90% confidence interval) by
MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

North Carolina had the lowest access score, and its demonstration serves the most rural areas. To assess whether its low access score can be explained by the fact that it is operating in predominantly rural areas, we determined the proportion of survey respondents living in Metropolitan Statistical Areas (MSAs) in each state and plotted the results by the state's access composite score. The results are shown in **Figure 3-6**. The Pearson correlation between these two measures was 0.27, so urban areas do tend to have higher access scores. After accounting for the proportion of participants living in rural areas, however, North Carolina's access score still would be expected to be three points higher than its observed score.

Figure 3-6
Scatterplot of mean state CAHPS PCMH survey access composite score by percent urban, eight MAPCP Demonstration states



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

Data from the focus groups provided more detailed information on patients' and caregivers' experiences with access to care.

Ease of getting an appointment. Focus group participants across all states generally had no difficulty getting an appointment for routine care. For urgent needs, most participants said that they could usually get in to see someone at the practice the same day or the next day, although typically not their PCP. This was acceptable to most participants, although a few said that they had special health care needs, so they felt that they really needed to see their PCP, who knew their medical history. In North Carolina, some participants described having a more difficult time getting appointments for urgent needs. They said that their practices were very small and had full schedules, so they often could not get in to be seen for an urgent need. Participants in many states described strategies used by their practices to make it easier to get in

for urgent needs, including walk-in clinics, weekend hours, and reserving some time slots each day for people who call in the morning. Some also said that front desk staff would work them in if it was truly urgent, or that their PCPs would stay late to see them.

Emergency room use. Many participants had used the ER during the past year, but the large majority of these visits were for true emergencies or when they needed care at night or on the weekend when their primary care practice was closed. Few participants said that their PCP had explicitly talked to them about reducing their use of the ER, and several reported that their practices actually encouraged them to go to the ER—specifically, that when they called the practice after hours, the recording would tell them to go to the ER. Some participants in Rhode Island and Pennsylvania did mention some measures that their practices have taken to reduce ER use, however. In Pennsylvania, some participants said that they had been encouraged to call the practice before going to the ER, that at least one practice had a dedicated call-in nurse to direct patients either to the ER or the clinic, and that there were signs in the clinic listing certain urgent issues better addressed at the clinic than in the ER. In Rhode Island, participants said one group of practices has office hours 365 days a year, and another has an urgent care center with extended hours onsite. A group of practices in New York has also opened an urgent care center onsite. Many participants said that they preferred to avoid the ER if they could—because of long waits, high costs, and rude staff—but they often had no alternative if they needed care after hours. Urgent care facilities were a new option in many locations, but they were not available everywhere, and even those were not open late at night. In Vermont, three participants said they had gone to the ER to get pain medication because their PCP would not give it to them, and, in North Carolina, several participants said that they went to the ER even during office hours because they could not get in to see their PCP. Some participants in Michigan noted that, because they relied on a transportation service, it was easier to go to the ER for urgent health care needs than to try to get appointment times that aligned with the transportation service and the PCP.

Wait times. Participants generally thought that wait times were quite short—typically not more than 15 minutes, and if longer, it was for a good reason. In several states (Michigan, Maine, Minnesota, New York, and Pennsylvania), at least some participants thought that the wait times had gotten shorter in recent years. Participants in North Carolina reported mixed experiences—some said wait times were short, others said they often waited an hour or more.

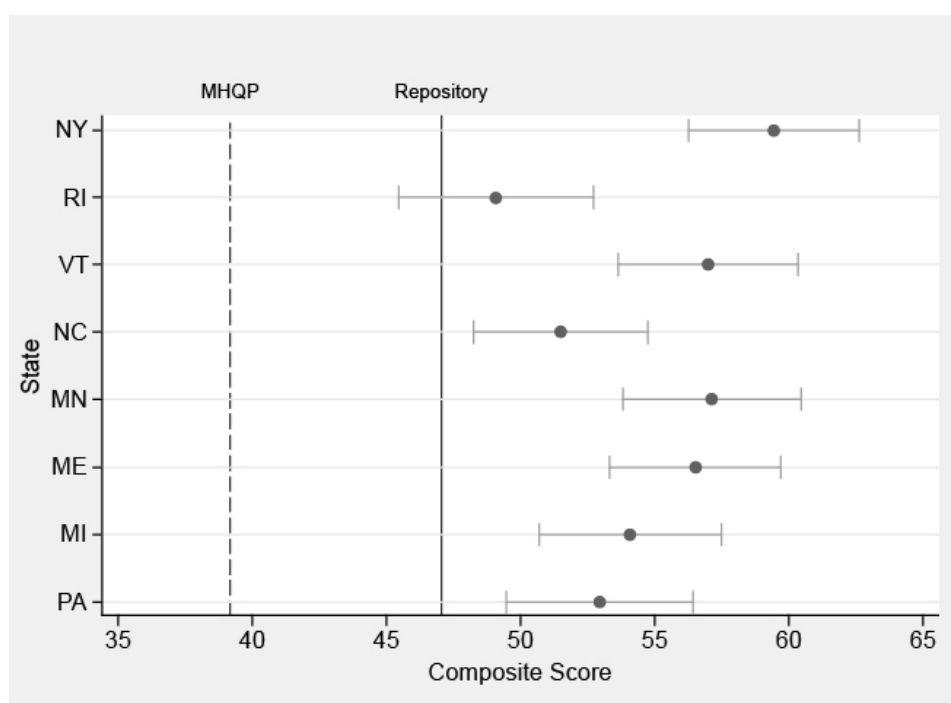
Patient portals. By the end of the demonstration, most practices had a patient portal. At least some participants in all states had used their practice’s patient portal, but the proportions who had used it varied widely. In Rhode Island, for example, most participants reported that their practice had a patient portal, and almost all of those who knew about it used it. At the other extreme, in North Carolina, most were not aware of a patient portal at their practice, and very few had used one. Most participants who had used their practice’s patient portal were enthusiastic about it, using it to make appointments, check test results, and communicate with their PCP. Most found the system easy to use, although a few had some difficulty with it. Some of those who had not heard of the patient portal before were interested in trying it, but others said they were not interested because the current system worked for them; they were “technology averse”; they were worried about privacy issues; or they did not have a computer with Internet service. An especially high proportion of participants in North Carolina said that they did not have a computer.

Self-management support. In the CAHPS PCMH survey, patients were asked two questions about the support they received for self-management of their health:

- Whether practice staff talked to them about specific health goals; and
- Whether practice staff talked to them about things that made it hard for them to take care of their health.

Responses to these questions were aggregated into a composite score for self-management support (**Figure 3-7**). Because it is based on only two dichotomous items, it is a relatively crude composite, as evidenced by the wider confidence intervals for the mean scores. All states except Rhode Island outperformed both the MHQP and the CAHPS Database standard for this composite; Rhode Island outperformed the MHQP and was comparable to the CAHPS Database standard.

Figure 3-7
Mean self-management support composite score (and 90% confidence interval) by MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

Most focus group participants said that their PCPs talked to them about things they could do to improve their health, although almost none reported having a written care plan, and few said that they had set specific health-related goals with their PCP. For those who had set goals with their PCPs, goals included losing a specific number of pounds per month, reducing the number of medications they were taking, being able to walk a certain distance, getting blood pressure below a certain level, or stopping smoking. The primary topics that PCPs discussed with

their patients were diet, exercise, smoking cessation, and reminders about preventive care (such as colonoscopies and skin checks). A few participants, however, said their PCP talked about managing their health only if they, the patients, brought it up, and they wished they spent more time discussing prevention. Some participants said that their PCPs had given up talking to them about behavior change, because they knew that it would be “in one ear and out the other.”

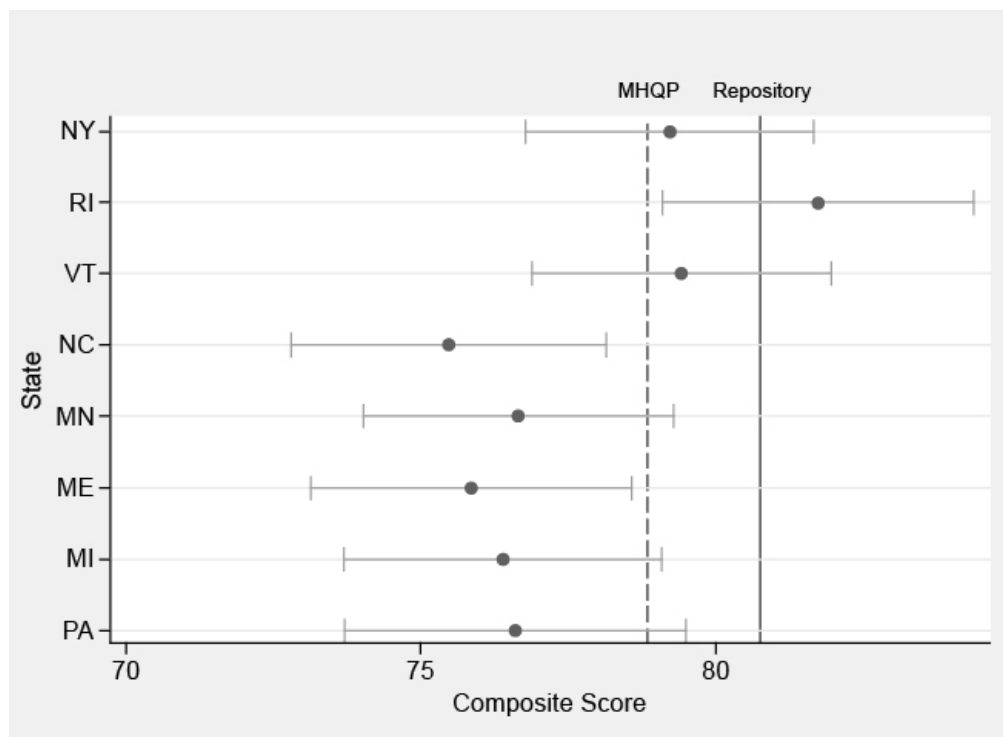
The amount of support that participants received for managing their health varied. A few said that their PCPs referred them to classes on smoking cessation, diabetes control, weight loss, cardiovascular disease, cooking, or fall prevention. A few participants in Vermont attended Healthier Living Workshops or a Wellness Recovery Action Plan program. Most found the classes they were referred to helpful, but a few found them unhelpful (too basic or not relevant for their situation), or they were not able to attend the classes because they could not afford the cost of the class or the gas to get to the class. A few participants said that their PCP had offered other supports, such as referring them to a dietitian or nutritionist to help support healthy eating, or setting them up with a blood pressure cuff and log books to monitor their blood pressure. Some commented, though, that their PCPs just gave them written information, such as a pamphlet, and no additional support for behavior change.

Shared decision-making. In the CAHPS PCMH survey, patients were asked three questions about shared decision-making, focused specifically on decisions related to starting or stopping a prescription medication:

- How much their providers talked to them about the reasons to take a medicine;
- How much their providers talked to them about the reasons they might *not* want to take a medicine; and
- Whether their providers asked them what they thought was best for them when talking about starting or stopping a prescription medicine.

Responses to these questions were aggregated into a composite score for shared decision-making (**Figure 3-8**). Scores for this composite score were very similar across the MAPCP Demonstration states (range = 75.9 to 81.7). Scores for three states (Rhode Island, New York, and Vermont) were comparable to the CAHPS Database mean; scores for another three states (Michigan, Minnesota, and Pennsylvania) were below the CAHPS Database mean but comparable to the MHQP mean; and scores for two states (Maine and North Carolina) were below the means for both standards.

Figure 3-8
Mean shared decision-making composite score (and 90% confidence interval) by
MAPCP Demonstration state



CAHPS = Consumer Assessment of Healthcare Providers and Systems; MAPCP = Multi-Payer Advanced Primary Care Practice; MHQP = Massachusetts Health Quality Partners.

Focus group participants discussed shared decision-making more broadly than covered in the survey. Most participants thought that their relationship with their PCPs was a partnership, and that their PCPs respected their opinions and preferences and involved them in making decisions about their treatment. However, some participants—primarily Medicaid and dually eligible beneficiaries—felt that their PCPs disregarded their perspectives, either by not focusing on the health concerns most important to them, not taking their health concerns seriously, or pushing them to have treatments or tests they did not want. A few said their PCPs had the attitude, “I’m the doctor, you’re not.” A few participants did acknowledge, however, that at times their PCPs turned out to be right when they persisted in recommending tests or treatments the participants resisted. Some participants (particularly dually eligible beneficiaries, many of whom had painful chronic conditions) said that their PCPs would not give them the pain medication they felt they needed. Several participants said they thought, in general, that patients need to advocate for themselves to make sure that their concerns were addressed.

Focus group findings for care coordination. The CAHPS PCMH survey did not ask respondents about their experiences with care coordination. Focus group participants, however, were asked about their experience with care managers, coordination observed between their primary care practices and local hospitals, and coordination between their primary care practices and specialists.

Care managers. Few focus group participants in any state had care managers. Participants with care managers were often unsure where their care manager came from or why they were assigned to one. For those who did know where they came from, these sources included hospitals after discharge, local community-based organizations, local agencies such as the Area Agency on Aging, and PCPs. Most participants who had a care manager through their PCP were either Medicaid or dually eligible participants, and most were very happy with the support they received. They mentioned receiving help with things like home care, house work, transportation, obtaining housing or employment, emotional support, reviewing medications, setting up appointments, and getting needed medical equipment. In Rhode Island, a few participants said they had a nurse care manager who provided information on diabetes. A few participants did not find the care managers very helpful, but it was not always clear whether the care managers to which they were referred came from their PCP.

Coordination with hospitals. Focus group participants generally thought that coordination between their primary care practices and hospitals was good, and that it had significantly improved due to EHRs; hospitals were able to access their health records from the PCP, and vice versa. Most said that their provider knew when they had been in the hospital, and some said that their PCP had come to see them in the hospital. Many noted, however, that hospitals have made a shift to hospitalists in recent years, and some said that they were frustrated because they could not speak to their PCP, who knew them best, while they were in the hospital. Some participants also noted that records did not transfer automatically to the PCP if the hospital was part of a different system. One participant mentioned that the hospital automatically set up a follow-up appointment for him with his PCP after discharge, but others said they had to make the appointment themselves.

Coordination with specialists. Most participants thought that the coordination between their PCPs and specialists was good. Similar to the coordination with hospitals, most participants said that EHRs have improved the transfer of information between their PCP and specialists—their specialists can access information from the PCP on the computer, and the PCP receives records from the specialists—but some noted that the transfer of information is not always automatic, particularly if the PCP and specialists are in different systems. Despite the relatively smooth exchange of information, however, a few participants commented that they were not sure to what extent their PCPs actually digested the information, and they did not always feel that their PCPs truly were coordinating their care. Some caregivers, in particular, said they felt that they were the ones who had to take the lead in coordinating the care for their loved ones.

A few participants found their specialists on their own, but most participants said they typically were referred to specialists by their PCP. Some participants thought that, under the terms of their insurance, they could not see a specialist without a referral. Many participants said that when their PCP referred them to a specialist, the staff at the front desk would make the first appointment for them before they even left the office. Many said that this was a new service, and that they could usually get in to see the specialist much faster if the PCP's office made the appointment than if they did it on their own. Some participants, especially Medicaid and dually eligible participants, said that one challenge with referrals was that, frequently, the specialist to whom their PCP referred them would not accept their insurance, so they ended up having to call around on their own to find one who would accept their insurance.

3.4.4 Effectiveness (Utilization and Expenditures)

In their applications for the MAPCP Demonstration, the states projected reductions in avoidable inpatient hospitalizations, avoidable ER visits, and hospital readmissions. These reductions were expected to result from shifting patient care from hospital to primary care settings, targeting and helping high-risk beneficiaries to navigate health care issues in a more personal environment, implementing more proactive rather than reactive care, and augmenting services provided by the PCMHs. Although readmissions were analyzed in our coordination of care discussion, here we analyzed hospitalizations, ER visits, and expenditures. Overall, our quantitative analysis found:

- Fewer all-cause Medicare admissions in fewer than half the MAPCP Demonstration states;
- Slower total Medicare expenditure growth in fewer than half the MAPCP Demonstration states;
- Slower growth in Medicare expenditures on specialty physicians in six MAPCP Demonstration states; and
- Slower total Medicaid expenditure growth in none of the MAPCP Demonstration states.

Although interviewees in most states provided anecdotal evidence of reducing expensive unnecessary utilization, our analysis of Medicare and Medicaid claims data showed that the states were generally not successful in their endeavors to change utilization patterns in a way that would lead to reduction in expenditures. Three states (Michigan, New York, and Pennsylvania) experienced decreases in Medicare all-cause admissions relative to the PCMH comparison practices. Favorable changes in Medicaid inpatient utilization were similarly rare. Pennsylvania was the only state to have a decrease in the all-cause admission rate of adult Medicaid beneficiaries; Michigan was the only for child Medicaid beneficiaries. Several states (Vermont, North Carolina, Minnesota, Maine, Michigan, and Pennsylvania) experienced an increase in all-cause admissions among one of the three beneficiary populations. No state had improvement in the Medicaid admission rates for low birth weight.

No states had a decrease in Medicare ER visits not leading to hospitalization during the MAPCP Demonstration through December 2014. There were decreases, however, for adult Medicaid beneficiaries in Pennsylvania and child Medicaid beneficiaries in North Carolina. In Vermont, the rate of ER visits increased among all three beneficiary populations.

The results for Medicare expenditures were only a little better than the Medicare utilization findings. During the demonstration, total Medicare expenditures grew slower in only three states (Vermont, Michigan, and Pennsylvania). However, six of the eight MAPCP Demonstration states had slower growth in Medicare specialty physician expenditures, which represents a category of expenditures that is universally the target of PCMH models. In addition, four states (New York, Vermont, Michigan, and Pennsylvania) had slower growth in laboratory expenses; three states (New York, Pennsylvania, and Michigan) had slower growth in acute-care

expenditures; and three states (New York, Rhode Island, and Vermont) had slower growth in imaging expenditures.

Demonstration beneficiaries had *faster* growth in some Medicare expenditure categories relative to at least one of the CGs. Four states (New York, Vermont, North Carolina, and Michigan) expectedly had faster growth in Medicare outpatient expenditures, and four states (Rhode Island, North Carolina, Minnesota, and Maine) expectedly had faster growth in home health expenditures. Faster growth in Medicare post-acute-care expenditures in three states (Rhode Island, North Carolina, and Maine), however, did not align with the goals of the state initiatives.

Compared with Medicare expenditures, fewer Medicaid expenditure categories had slower growth rates during the MAPCP Demonstration through December 2014. No state had slower growth for total Medicaid expenditures for child or adult beneficiaries. New York was the only state that experienced significantly slower growth in expenditure categories for Medicaid beneficiaries. ER expenditures grew more slowly for adult Medicaid beneficiaries relative to non-PCMH comparison practices. For Medicaid children in New York, specialty physician expenditures relative to PCMH comparison practices and prescription drugs relative to non-PCMH comparison practices had slower growth rates during the first 14 quarters of its demonstration.

In their MAPCP Demonstration applications, states detailed the expenditure and utilization categories that they expected to be affected by their initiatives. Some of these categories do not map directly to expenditure and utilization outcomes analyzed across all eight MAPCP Demonstration states. Thus, in addition to the common set of expenditure and utilization measures, we also analyzed other categories mentioned specifically in states' demonstration applications. This analysis is limited to Medicare data only. **Table 3-13** provides a list of the categories significantly affected by the MAPCP Demonstration and the direction of the effect.

Table 3-13
Significant effects on state-targeted expenditure and utilization measures among
Medicare beneficiaries:
MAPCP Demonstration through December 2014

State	vs. PCMH CG	vs. non-PCMH CG
New York	ER Professional Expenditures ↓	ER Professional Expenditures ↓
Rhode Island	Office/Home Visit Expenditures ↑ E&M Visits (Office) ↑	None
Vermont	Inpatient Physician Expenditures ↓ Hospital-Based Care for ACSCs ↑ Respiratory System ↑ Musculoskeletal ↓ Kidney/Urology ↑ Rehabilitation ↓ Ambulance Services ↑ Home Health ↓	Inpatient Physician Expenditures ↓ Outpatient Physician Expenditures ↑ Outpatient ER Expenditures ↓ Hospital-Based Care for ACSCs ↑ Respiratory System ↑ Rehabilitation ↓ SNFs, Long-Term Care ↑
North Carolina	E&M Visits (Outpatient) ↑	None
Minnesota	—	None
Maine	Hospital Professional Expenditures ↑ Hospitalization for Cardiovascular Illness ↑ Standard Imaging ↑	Hospital Professional Expenditures ↑ ER Professional Expenditures ↑
Michigan	None	Expenditures for Office Visits/ Preventive Services ↓
Pennsylvania	Hospital Professional ↓ Laboratory ↓	Laboratory ↓

ACSC = ambulatory care sensitive conditions; CG = comparison group; E&M = evaluation and management; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; SNF = skilled nursing facility.

Discrepancies between the beliefs expressed by some practices about their success in improving utilization and expenditures and the data analysis perhaps were due to practices' effects being less broad than they believed or the failure of practices to recognize that other factors also were decreasing utilization throughout the state, including for non-demonstration beneficiaries (e.g., the movement toward ACOs in Minnesota). Some state initiatives attributed their inability to influence utilization of inpatient and ER services to being unable to target care management effectively because of a lack of communication with hospitals or ERs and a lack of timely, actionable data. Interviewees also mentioned the general difficulty of getting patients to change their behavior in seeking care. The limited evidence of changes presented in this report also perhaps resulted from the relatively short evaluation period. Because strengthening PCMH capacity, payment reforms, and other transformation activities took time to implement and become fully effective, more overall positive impacts may emerge later in the five states continuing the MAPCP Demonstration. In **Tables 3-14** and **3-15**, we examine the results of our quantitative utilization and expenditure analyses of the demonstration through December 2014 more closely.

In **Table 3-14**, we report the average change in total expenditures and several expenditure categories for Medicare and Medicaid beneficiaries in each of the eight demonstration states during the MAPCP Demonstration through December 2014. In **Table 3-15**, we report on important utilization outcomes. The expenditure values estimate whether the MAPCP Demonstration affected the averages of per beneficiary per month (PBPM) payments. For Medicare beneficiaries, we present estimates of whether the demonstration affected the average number of all-cause admissions and ER visits per 1,000 beneficiary quarters. For Medicaid beneficiaries, the values estimate whether the demonstration affected the likelihood of having an inpatient admission, ER visit, or low birth weight admission. For details about how these estimates were derived, see **Section 1.2.5**.

For the expenditure outcomes, *negative* estimates indicate that the average growth in expenditures from the baseline period through December 2014 of the demonstration was *slower* for beneficiaries assigned to practices participating in the MAPCP Demonstration than for beneficiaries assigned to comparison practices. For the utilization rates, *negative* numbers indicate that, through December 2014, beneficiaries assigned to demonstration practices experienced a decrease in utilization relative to the CG. Conversely, *positive* numbers indicate that the growth in expenditures from the baseline period through December 2014 of the demonstration was *faster* for beneficiaries assigned to demonstration practices than for those assigned to comparison practices, or that, through December 2014, beneficiaries assigned to demonstration practices experienced an *increase* in utilization relative to the CG.

Table 3-14
Comparison of average changes for Medicare and Medicaid expenditures:
MAPCP Demonstration through December 2014

Outcome	Total expenditures			Acute care			Post-acute care			ER		
	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child
New York												
vs. PCMH CG	4.64	17.51	5.31	-18.92*	-1.08	-0.12	5.05	—	—	3.96*	-1.33	-0.85
vs. non-PCMH CG	-9.67	-5.34	-0.81	-6.34	2.64	2.59	-4.94	—	—	4.70*	-1.27*	0.02
Rhode Island												
vs. PCMH CG	36.33	17.28*	—	-2.10	7.17	—	8.58	—	—	-0.55	1.04	—
vs. non-PCMH CG	27.44	3.90	—	13.38	-6.76	—	11.55*	—	—	0.38	0.69	—
Vermont												
vs. PCMH CG	-36.06*	32.65*	41.61*	-9.40	3.32*	7.44*	-14.66*	—	—	0.79	1.46	-1.59
vs. non-PCMH CG	-27.07*	19.03	35.56*	-6.08	5.72*	12.26*	-14.53*	—	—	-3.00*	1.42*	1.47*
North Carolina												
vs. PCMH CG	10.49	4.33	16.64	1.38	1.27	0.92	1.38	—	—	1.27	0.79	0.51
vs. non-PCMH CG	20.13	26.20*	12.54*	2.13	6.37*	0.10	7.33*	—	—	1.27	1.08	0.14
Minnesota												
vs. PCMH CG	—	—	—	—	—	—	—	—	—	—	—	—
vs. non-PCMH CG	34.05*	N/A	N/A	12.48	N/A	N/A	5.20	—	—	3.41*	N/A	N/A
Maine												
vs. PCMH CG	41.23	—	—	25.03*	—	—	11.13*	—	—	0.71	—	—
vs. non-PCMH CG	56.10*	-7.64	-3.47	25.80*	-0.19	-2.03	8.92*	—	—	-1.16	0.37	0.68
Michigan												
vs. PCMH CG	-43.37*	N/A	N/A	-22.84*	N/A	N/A	-13.03*	—	—	-0.93	N/A	N/A
vs. non-PCMH CG	-20.68	N/A	N/A	-12.45	N/A	N/A	-9.08	—	—	0.25	N/A	N/A
Pennsylvania												
vs. PCMH CG	-37.68*	N/A	N/A	-22.40*	N/A	N/A	-4.47	—	—	-1.87	N/A	N/A
vs. non-PCMH CG	-25.92	N/A	N/A	-11.28	N/A	N/A	-2.67	—	—	-1.10	N/A	N/A

(continued)

Table 3-14 (continued)
Comparison of average changes for Medicare and Medicaid expenditures:
MAPCP Demonstration through December 2014

Outcome	Outpatient			Specialty physician			Primary care physician			Home health
	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicare
New York										
vs. PCMH CG	23.36*	—	—	-8.13*	-0.60	-2.07*	-3.67*	8.20*	4.43*	1.12
vs. non-PCMH CG	10.77	—	—	-4.46	0.20	-0.45	-3.01	11.19*	4.76*	-1.78
Rhode Island										
vs. PCMH CG	6.22	—	—	4.64	0.95	—	3.35*	0.60	—	4.87*
vs. non-PCMH CG	-3.00	—	—	4.00	0.60	—	1.25	0.96	—	4.65*
Vermont										
vs. PCMH CG	8.00*	—	—	-8.23*	N/A	N/A	-2.43	N/A	N/A	-5.51*
vs. non-PCMH CG	2.43	—	—	-4.42*	N/A	N/A	-2.05	N/A	N/A	2.91*
North Carolina										
vs. PCMH CG	3.42	—	—	3.34	1.83	0.42	-0.65	3.17	0.41	-0.77
vs. non-PCMH CG	6.99*	—	—	-3.22	2.74	-0.88	0.05	-0.14	-1.02	2.60*
Minnesota										
vs. PCMH CG	—	—	—	—	—	—	—	—	—	—
vs. non-PCMH CG	11.55	—	—	-8.37*	N/A	N/A	-1.07	N/A	N/A	4.10*
Maine										
vs. PCMH CG	16.90	—	—	-13.80*	—	—	-2.94	—	—	-1.23
vs. non-PCMH CG	8.17	—	—	4.25	0.20	0.26	0.47	2.26	-2.90	5.37*
Michigan										
vs. PCMH CG	5.26	—	—	-10.05*	N/A	N/A	-2.12	N/A	N/A	0.35
vs. non-PCMH CG	10.63*	—	—	-7.21*	N/A	N/A	-2.70	N/A	N/A	1.94
Pennsylvania										
vs. PCMH CG	-3.49	—	—	2.44	N/A	N/A	-3.17	N/A	N/A	-0.26
vs. non-PCMH CG	3.26	—	—	-9.04*	N/A	N/A	-2.28*	N/A	N/A	-2.36

(continued)

Table 3-14 (continued)
Comparison of average changes for Medicare and Medicaid expenditures:
MAPCP Demonstration through December 2014

Outcome	Other non-facility	Laboratory	Imaging	Other facility	Prescription drugs		Long-term care	
	Medicare	Medicare	Medicare	Medicare	Medicaid adult	Medicaid child	Medicaid adult	Medicaid child
New York								
vs. PCMH CG	0.81	-1.54*	-2.86*	0.05	7.31*	-2.23	N/A	N/A
vs. non-PCMH CG	-3.52	-0.71	-2.26*	-0.03*	-4.08	-5.22*	N/A	N/A
Rhode Island								
vs. PCMH CG	0.10	-0.82	-0.20	-0.03	3.49	—	-0.21	—
vs. non-PCMH CG	-0.30	-0.28	-0.65	0.01	3.91*	—	0.37	—
Vermont								
vs. PCMH CG	-0.90	-0.67*	-1.26*	-0.02	27.98*	9.35*	N/A	N/A
vs. non-PCMH CG	0.10	-1.49*	-1.12*	0.00	16.63*	6.89*	N/A	N/A
North Carolina								
vs. PCMH CG	-0.15	-1.98	-0.69	0.03	-4.66	3.30*	-5.68	1.61
vs. non-PCMH CG	0.89	-2.10	-0.85	0.03	-5.01	0.61	-1.68	0.95*
Minnesota								
vs. PCMH CG	—	—	—	—	—	—	—	—
vs. non-PCMH CG	0.73	-0.32	-0.77	-0.16	N/A	N/A	N/A	N/A
Maine								
vs. PCMH CG	1.03	-0.64	-0.75	-0.12	—	—	—	—
vs. non-PCMH CG	0.27	0.39	-0.25	0.05	0.30	-1.94	-0.10	0.01
Michigan								
vs. PCMH CG	-0.55	-2.62*	-0.05	-0.74	N/A	N/A	N/A	N/A
vs. non-PCMH CG	0.08	-2.68*	-0.69	0.19	N/A	N/A	N/A	N/A

(continued)

Table 3-14 (continued)
Comparison of average changes for Medicare and Medicaid expenditures:
MAPCP Demonstration through December 2014

Outcome	Other non-facility	Laboratory	Imaging	Other facility	Prescription drugs		Long-term care	
	Medicare	Medicare	Medicare	Medicare	Medicaid adult	Medicaid child	Medicaid adult	Medicaid child
Pennsylvania								
vs. PCMH CG	-1.72	-2.87*	-1.29	-0.12	N/A	N/A	N/A	N/A
vs. non-PCMH CG	-2.49	-2.28*	-0.98	-0.34*	N/A	N/A	N/A	N/A

NOTES:

- All measures are PBPM expenditures. For Medicaid, expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. A *negative* value corresponds to *slower growth* in expenditures relative to the CG. A *positive* value corresponds to *faster growth* relative to the CG.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by the total number of beneficiaries attributed during the year(s).
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.
- Expenditure data were reported in the Medicaid claims and managed care encounter data provided by Minnesota, Michigan, and Pennsylvania.
- Minnesota does not have a PCMH CG because the HCH certification is so widespread that identifying sufficient numbers of non-HCH practices to create a PCMH CG is not possible.
- Some expenditure outcomes could only be calculated consistently across states in the Medicare claims files (e.g., other facility, other non-facility, post-acute-care), whereas others (e.g., prescription drugs and long-term care expenditures) were available only in the Medicaid claims and managed care encounter data. When an outcome could not be calculated in a state due to data limitations, the table cell includes “N/A.”

CG = comparison group; FQHC = federally qualified health center; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = data are not available because of Medicaid data limitations; PBPM = per beneficiary per month; PCMH = patient-centered medical home; — = not applicable.

* Statistically significant at the 10 percent level.

Table 3-15
Comparison of average changes for Medicare and Medicaid utilization rates:
MAPCP Demonstration through December 2014

Outcome	All-cause admissions (per 1,000 beneficiaries)			ER visits not leading to hospitalization (per 1,000 beneficiaries)			Low birth weight admissions
	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicaid child
New York							
vs. PCMH CG	-6.09*	-0.19	-0.04	-3.74	0.98	1.40	0.11
vs. non-PCMH CG	-3.71*	-0.16	-0.05	2.76	-0.11	0.65	-3.64
Rhode Island							
vs. PCMH CG	-0.66	0.03	—	-5.01	0.66	—	—
vs. non-PCMH CG	4.29	-0.09	—	-4.11	0.09	—	—
Vermont							
vs. PCMH CG	-0.58	0.27*	0.03	14.65*	0.54	0.35	-5.00
vs. non-PCMH CG	1.15	0.37*	0.06	10.64*	0.85*	0.99*	-9.57
North Carolina							
vs. PCMH CG	3.16	0.34	0.09	5.55	0.08	-0.16	-0.17
vs. non-PCMH CG	3.14*	0.51	0.02	-1.20	-0.06	-0.92*	0.14
Minnesota							
vs. PCMH CG	—	—	—	—	—	—	—
vs. non-PCMH CG	0.98	0.33*	-0.08	6.60	0.04	0.74*	-0.02
Maine							
vs. PCMH CG	1.74	—	—	-9.56	—	—	—
vs. non-PCMH CG	5.54*	-0.08	-0.04	-9.92	0.70	0.87*	-1.89
Michigan							
vs. PCMH CG	-4.59*	0.10	-0.17*	1.80	0.27	-0.38	0.81
vs. non-PCMH CG	-1.38	0.32*	0.07	5.74*	0.93*	0.36	-0.22

(continued)

Table 3-15 (continued)
Comparison of average changes for Medicare utilization rates:
MAPCP Demonstration through December 2014

Outcome	All-cause admissions (per 1,000 beneficiaries)			ER visits not leading to hospitalization (per 1,000 beneficiaries)			Low birth weight admissions
	Medicare	Medicaid adult	Medicaid child	Medicare	Medicaid adult	Medicaid child	Medicaid child
Pennsylvania							
vs. PCMH CG	-6.33*	-0.39	0.20*	-2.18	0.40	0.95*	3.39
vs. non-PCMH CG	1.10	-0.63*	-0.02	-4.52	-2.03*	-0.09	0.71

NOTES:

- For Medicare, all measures are rates per 1,000 beneficiary quarters. For Medicaid, all measures are quarterly, dichotomous (yes/no) outcomes.
- For Medicare, estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- For Medicaid, estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by the total number of beneficiaries attributed during the year(s).
- Minnesota does not have a PCMH CG because the HCH certification is so widespread that identifying sufficient numbers of non-HCH practices to create a PCMH CG is not possible.
- Inpatient admissions for low birth weight were calculated for Medicaid only.

CG = comparison group; DNC = regression model did not converge; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home; — = not available.

* Statistically significant at the 10 percent level.

3.4.5 Special Populations

With a few exceptions, MAPCP Demonstration states did not develop unique interventions tailored to special populations. Exceptions include Vermont, which targeted older people living in supported housing (through the SASH program), and New York and North Carolina, which targeted people living in rural areas by virtue of where the demonstration takes place (the Adirondacks region in New York and seven rural counties in North Carolina). States did include in their demonstrations, however, several special populations (even though they are not designing tailored interventions for them) that are of general policy interest (e.g., dually eligible beneficiaries, Blacks). Information about special populations in each demonstration state is summarized in *Table 3-16*.

States generally argued that the goal of their PCMH initiatives was a person-centered transformation of primary care that would meet the needs of all patients, regardless of their ethnicity, race, insurance status, or rural/urban location. Thus, any special needs of particular populations would be addressed by the patient-centered care, and so targeting specific subpopulations was unnecessary.

Instead of sociodemographic characteristics or program participation eligibility, most states focused on patients believed to be at high risk of unnecessary utilization and expenditures or at high risk of adverse outcomes. Although payers provided information about patients to participating practices that would allow them to target high-risk individuals, states did not prescribe which patients were to receive interventions such as care management. States uniformly provided care management to at least some of these patients as the key mechanism for reducing unnecessary utilization, excessively high expenditures, and adverse outcomes.

Overall findings. Quantitative analysis suggests that the MAPCP Demonstration did not have a consistently statistically significant impact on any of the special populations examined. There is some evidence that state initiatives significantly reduced the rate of growth in Medicare expenditures in three of the eight demonstration states for at least one special population (e.g., race, urban/rural, beneficiaries eligible for both Medicare and Medicaid) in each state relative to either the PCMH CG practices or non-PCMH CGs. No state, however, was markedly more effective in serving these subpopulations than others.

The large majority of results for people with multiple chronic conditions were not significant. It is not clear that the interventions involved a large enough portion of the target population to materially affect quantitative outcomes. For example, only a small proportion of the population received care management and other interventions. These findings raise the question of whether more standardized approaches and more specific interventions tailored to subpopulations might have been associated with more desired outcomes.

Table 3-16
MAPCP Demonstration special populations by state

Population	New York	Rhode Island	Vermont	North Carolina	Minnesota	Maine	Michigan	Pennsylvania
Dually eligible beneficiaries	Y	Y	Y	X	Y	Y	Y	Y
People with disabilities	Y	Y	Y	X	Y	Y	Y	Y
Older people in supported housing	—	—	X	—	—	—	—	—
Beneficiaries with behavioral health issues	Y	Y	X	Y	Y	Y	Y	Y
Beneficiaries with chronic conditions/multiple comorbidities/high risk	Y	Y	X	X	Y	X	X	Y
Beneficiaries in rural areas	Y	—	Y	Y	Y	Y	Y	—
Racial/ethnic groups (e.g., African Americans, Somalis, Hmong, Hispanics)	—	—	—	Y	Y	—	Y	Y
Children with asthma	Y	—	Y	Y	Y	Y	Y	Y

NOTE:

X = a special focus of the state with an enhanced or special intervention; Y = not a group receiving an enhanced or special intervention, but a category of general policy interest; — = not analyzed in that state because the general population was not covered in the demonstration (e.g., children) or there were not enough patients in that category to conduct quantitative analyses.

MAPCP = Multi-Payer Advanced Primary Care Practice.

Methods. Sociodemographic special populations and people with multiple chronic conditions were evaluated against a very large number of outcomes. *Table 1-4* in *Section 1.2.4* shows the outcomes measured, as well as the expected direction of the change estimates for each outcome relative to the CGs. States had different numbers of outcomes measured for their beneficiary subpopulations, ranging from 12 to 21 outcomes (in some cases, small sample sizes precluded measure calculation). Assessing how the MAPCP Demonstration affected special populations required summarizing the effects of the MAPCP Demonstration across the eight states, the two CGs, the eight sociodemographic populations and beneficiaries with multiple chronic conditions, and the three Medicare and Medicaid categories (Medicare, Medicaid adults, and Medicaid children). The overall expectation of the MAPCP Demonstration was for expenditures in the demonstration group to decrease at a faster rate than the CG, or for expenditures to increase at a slower rate than the CG, resulting in a negative difference-in-differences (D-in-D) estimate. To simplify the analysis, we calculated the percentage of states with D-in-D estimates that were statistically significant¹² in the expected direction and the percentage significant in the unexpected direction within each outcome, CG, and subgroup. For example, for total expenditures for the Medicaid adult population, of people with behavioral health conditions, 25 percent of the eight states had results that were significant in the expected direction compared with the PCMH CG. In other words, across the eight states, two had significant results in the expected direction. The number of states in the denominator varies across outcomes because Minnesota did not have a PCMH CG, and for some outcomes the sample size did not permit calculation of the outcome.

All special populations. Relatively few special populations (i.e., beneficiaries with multiple chronic conditions, beneficiaries with behavioral health conditions, beneficiaries eligible due to disability, beneficiaries who were dually eligible, beneficiaries who were non-White, and beneficiaries who lived in a rural location) had slower growth in expenditures relative to the CGs, and some had faster growth in expenditures relative to the CGs. *Table 3-17* shows these rates for each of the special populations examined.

Across the eight states—two CGs and six sociodemographic populations, each with three beneficiary subpopulations (Medicare, adults with Medicaid, and children with Medicaid)—experience varied. For the Medicare population, no more than 14 percent of states had significant results that the MAPCP Demonstration reduced total expenditures compared with either the PCMH CG or the non-PCMH CG. For the Medicaid adult population, only 25 percent of states had significant results that the MAPCP Demonstration reduced expenditures relative to the CGs and no state achieved lower total expenditures for Medicaid children for either CG.

Appendix Table Z-1 reports the average demonstration effects on growth in total Medicare expenditures for each of the eight MAPCP Demonstration states through December 2014 for each special population. The estimates are reported separately for Medicare beneficiaries, adults with Medicaid, and children with Medicaid.

¹² Throughout this section, “significant” refers to statistically significant at $P < .10$.

No special population had clear patterns of expenditure changes across states and payers except non-White individuals, who did not have any significant decreases in expenditures but increased expenditures in 29 percent (6 out of 21) comparisons.

Table 3-17
Rates of expected and unexpected significant changes in overall expenditures, by special population, beneficiary subpopulation, and CG

Beneficiary subpopulation	CG	Special population						
			Multiple chronic conditions	Behavioral health conditions	Disabled	Dually eligible	Non-White	Rural
Medicare	PCMH CG	Expected Rate	14%	14%	0%	14%	0%	8%
		Unexpected Rate	14%	0%	14%	0%	9%	8%
	Non-PCMH CG	Expected Rate	14%	0%	0%	0%	0%	8%
		Unexpected Rate	29%	14%	0%	29%	18%	0%
Medicaid Adults	PCMH CG	Expected Rate	0%	25%	25%	—	0%	0%
		Unexpected Rate	50%	0%	25%	—	50%	33%
	Non-PCMH CG	Expected Rate	0%	0%	0%	—	0%	0%
		Unexpected Rate	0%	40%	0%	—	0%	25%
Medicaid Children	PCMH CG	Expected Rate	—	0%	0%	—	0%	0%
		Unexpected Rate	—	33%	0%	—	50%	67%
	Non-PCMH CG	Expected Rate	—	0%	50%	—	0%	0%
		Unexpected Rate	—	50%	25%	—	33%	25%

NOTE:

- Rates shown are the proportion of findings across all MAPCP Demonstration states for each beneficiary subpopulation, CG, and special population that were significant in the expected direction (decrease) and the proportion significant in the unexpected direction (increase).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; — = not applicable.

Michigan and Pennsylvania were the only states that saw significantly slower growth in expenditures in at least a few comparisons, but no significantly faster growth in overall expenditures in any of their special populations (data not shown). In contrast, North Carolina saw significantly faster growth rates in several comparisons (among non-White or rural Medicaid children and Medicaid children with behavioral health conditions or disabilities, non-White Medicare beneficiaries, and dually eligible beneficiaries) and only one significantly slower growth rate (among Medicaid adults with behavioral health conditions). Similarly, Rhode Island saw significantly faster growth in overall expenditures among Medicaid adults with behavioral health conditions, Medicare beneficiaries with disabilities, and non-White Medicare beneficiaries, while also seeing significantly slower growth in overall expenditures among Medicaid adults with disabilities.

Adults with multiple chronic conditions. Because of the central role in the MAPCP Demonstration of people with complex medical problems, we conducted extensive analyses of adults with multiple chronic conditions. In our analysis, we defined the multiple chronic conditions group as adults who had three or more chronic conditions present in two consecutive years of claims and were in the CMS Hierarchical Condition Category (HCC) high-risk category (top quartile of predicted expenditures).

To identify chronic conditions, we used the Chronic Condition Indicator algorithm developed by the Agency for Healthcare Research and Quality (AHRQ) as part of the Healthcare Cost and Utilization Project (Healthcare Cost and Utilization Project, 2015). The algorithm classifies International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnosis codes as either chronic or nonchronic and is updated each year. A chronic condition is defined as one that lasts 12 months or longer and meets one or both of the following conditions: (1) it limits people's ability to care for themselves, live independently, or interact with others; and (2) it requires ongoing intervention with medical products, services, or special equipment (Healthcare Cost and Utilization Project, 2015). About 22 percent of Medicare and 26 percent of adult Medicaid beneficiaries in the demonstration met this definition.

Table 3-18 summarizes these outcomes for adults with multiple chronic conditions in PCMH and non-PCMH CG practices. The MAPCP Demonstration resulted in mixed and mostly non-significant outcomes for Medicare and Medicaid beneficiaries with multiple chronic conditions. There does not appear to be a consistent pattern in terms of which outcomes were most improved across the MAPCP Demonstration states, nor which states had the best outcomes. Not all of the significant results were in the expected direction. **Appendix Table Z-2** breaks down the estimated impacts by state.

Among Medicare beneficiaries with multiple chronic conditions, comparing each state's demonstration group with their respective PCMH CG, three out of seven states showed significant decreases in acute-care expenditures (percentage of outcomes across the states and the CGs with 43% of the outcomes in the expected direction), whereas one out of seven states showed significant increases in acute-care utilization (unexpected rate of 14%). Similarly, relative to the PCMH CG and within Medicare beneficiaries, three out of seven states showed significant increases in primary care expenditures (expected rate of 43%), whereas one out of seven showed significant decreases in acute-care utilization (expected rate of 14%).

Table 3-18
Rates of expected and unexpected significant findings on utilization and expenditure outcome measures among people with multiple chronic conditions, by beneficiary subpopulation and CG

	Outcome	Medicare				Medicaid adults			
		vs. PCMH CG		vs. non-PCMH CG		vs. PCMH CG		vs. non-PCMH CG	
		Expected rate	Unexpected rate	Expected rate	Unexpected rate	Expected rate	Unexpected rate	Expected rate	Unexpected rate
Access to care and coordination of care	Primary care visits (per 1,000 beneficiary quarters)	29%	0%	13%	0%	33%	17%	17%	0%
	Medical specialist visits (per 1,000 beneficiary quarters)	0%	14%	13%	13%	17%	0%	0%	0%
	Surgical specialist visits (per 1,000 beneficiary quarters)	14%	43%	0%	38%	17%	0%	17%	17%
	Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)	29%	0%	0%	0%	—	—	—	—
	30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)	0%	0%	0%	0%	0%	0%	14%	0%
Mean: Access to care and coordination of care		14%	11%	5%	10%	17%	4%	12%	4%
Expenditures	Total expenditures	14%	14%	13%	25%	0%	50%	0%	0%
	Acute-care expenditures	43%	14%	13%	25%	0%	25%	0%	40%
	Post-acute-care expenditures	14%	14%	13%	25%	—	—	—	—
	ER expenditures	0%	0%	0%	25%	0%	0%	0%	0%
	Outpatient expenditures	14%	29%	0%	25%	—	—	—	—
	Specialty physician expenditures	14%	29%	13%	25%	0%	0%	0%	0%
	Primary care physician expenditures	43%	0%	0%	0%	33%	0%	25%	0%

(continued)

Table 3-18 (continued)
Rates of expected and unexpected significant findings on utilization and expenditure outcome measures among people with multiple chronic conditions, by beneficiary subpopulation and CG

	Outcome	Medicare				Medicaid adults			
		vs. PCMH CG		vs. non-PCMH CG		vs. PCMH CG		vs. non-PCMH CG	
		Expected rate	Unexpected rate	Expected rate	Unexpected rate	Expected rate	Unexpected rate	Expected rate	Unexpected rate
Mean: Expenditures		20%	14%	7%	21%	7%	15%	5%	8%
Utilization	All-cause admissions	14%	0%	0%	63%	0%	14%	0%	29%
	ER visits not leading to hospitalization (per 1,000 beneficiary quarters)	0%	14%	0%	38%	14%	14%	14%	43%
Mean: Utilization		7%	7%	0%	50%	7%	14%	7%	36%
Processes of care	HbA1c testing	0%	0%	0%	0%	33%	0%	0%	0%
	Retinal eye examination	0%	0%	13%	0%	0%	50%	17%	17%
	LDL-C screening	14%	14%	0%	0%	33%	17%	0%	17%
	Medical attention for nephropathy	0%	29%	0%	13%	17%	17%	17%	17%
	Received all 4 diabetes tests	14%	14%	0%	0%	0%	0%	0%	0%
	Received none of the 4 diabetes tests	0%	14%	13%	0%	33%	0%	0%	0%
	Total lipid panel	0%	0%	0%	25%	—	—	—	—
Mean: Processes of care		4%	10%	4%	5%	19%	14%	6%	8%
Avoidable events	Avoidable catastrophic events	0%	0%	0%	13%	—	—	—	—
	PQI admissions—overall	14%	0%	0%	38%	—	—	—	—
	PQI admissions—acute	0%	0%	13%	25%	—	—	—	—
	PQI admissions—chronic	0%	14%	0%	25%	—	—	—	—
Mean: Avoidable events		4%	4%	3%	25%	—	—	—	—

NOTE:

- Rates shown are the proportion of findings across all states that were significant in the expected direction and the proportion that were significant in the unexpected direction. Expected directions for each outcome are given in **Table 3-19**.

CG = comparison group; ER = emergency room; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI= Prevention Quality Indicator; — = not applicable.

Comparing findings for adult Medicare and Medicaid beneficiaries with multiple chronic conditions across the two CGs. *Access to care and coordination of care.* This category of outcomes included primary care visits, medical specialist visits, surgical specialist visits, follow-up visits within 14 days after discharge, and 30-day unplanned readmissions.

- Among **Medicare beneficiaries with multiple chronic conditions**, the average significant expected rate across all access to care and coordination of care measures compared with the PCMH CG practices was 14 percent, and the unexpected rate was 11 percent. Compared with non-PCMH CG practices, the average significant overall expected rate was 5 percent and the average significant unexpected rate was 10 percent.
- Among **adult Medicaid beneficiaries with multiple chronic conditions**, the average significant expected rate across all access to care and coordination of care measures compared with the PCMH CG practices was 17 percent, and the average unexpected rate across all access to care and coordination of care measures was 4 percent. Compared with non-PCMH CG practices, the average overall significant expected and unexpected rates were 12 percent and 4 percent, respectively.

Expenditures. This category of outcomes included total, acute-care, post-acute-care, ER, outpatient, specialty physician, and primary care physician expenditures.

- Among **Medicare beneficiaries with multiple chronic conditions**, the average significant expected rate across all expenditure outcomes compared with the PCMH CG practices was 20 percent, and the average unexpected rate across all expenditure outcomes was 14 percent. Compared with non-PCMH CG practices, the average overall significant expected rate was 7 percent and the unexpected rate was 21 percent.
- Among **adult Medicaid beneficiaries with multiple chronic conditions**, the average significant expected rate across all expenditure outcomes compared with PCMH CG practices was 7 percent, and the average significant unexpected rate across all expenditure outcomes was 15 percent. Compared with non-PCMH CG practices, the average overall significant expected and unexpected rates were 5 and 8 percent, respectively.

Utilization. This category of outcomes, which included inpatient admissions and ER visits not leading to hospitalization, had the highest unexpected rates overall, especially compared with non-PCMH CG practices.

- Among **Medicare beneficiaries with multiple chronic conditions**, the average significant expected rates across all utilization outcomes were 7 percent relative to PCMH CG practices and 0 percent relative to non-PCMH CG practices. Average overall significant unexpected rates for the PCMH and non-PCMH CG practices were 7 percent and 50 percent, respectively.

- Among **adult Medicaid beneficiaries with multiple chronic conditions**, the average significant expected rates across all utilization outcomes were 7 percent relative to PCMH CG practices and non-PCMH CG practices. Average overall significant unexpected rates for the PCMH and non-PCMH CG practices were 14 percent and 36 percent, respectively.

Processes of care. This category of outcomes included HbA1c testing, retinal eye examination, LDL-C screening, and total lipid panel, and received all 4 diabetes tests, none of the 4 diabetes tests, and medical attention for nephropathy.

- Among **Medicare beneficiaries with multiple chronic conditions**, average significant expected rates across all process-of-care measures were 4 percent relative to both PCMH and non-PCMH CG practices. Average overall significant unexpected rates for the PCMH and non-PCMH CG practices were 10 percent and 5 percent, respectively.
- Among **adult Medicaid beneficiaries with multiple chronic conditions**, the average significant expected rates across all process of care measures were 19 percent relative to PCMH CG practices and 6 percent relative to non-PCMH CG practices. Average overall unexpected rates for the PCMH and non-PCMH CG practices were 14 percent and 8 percent, respectively.

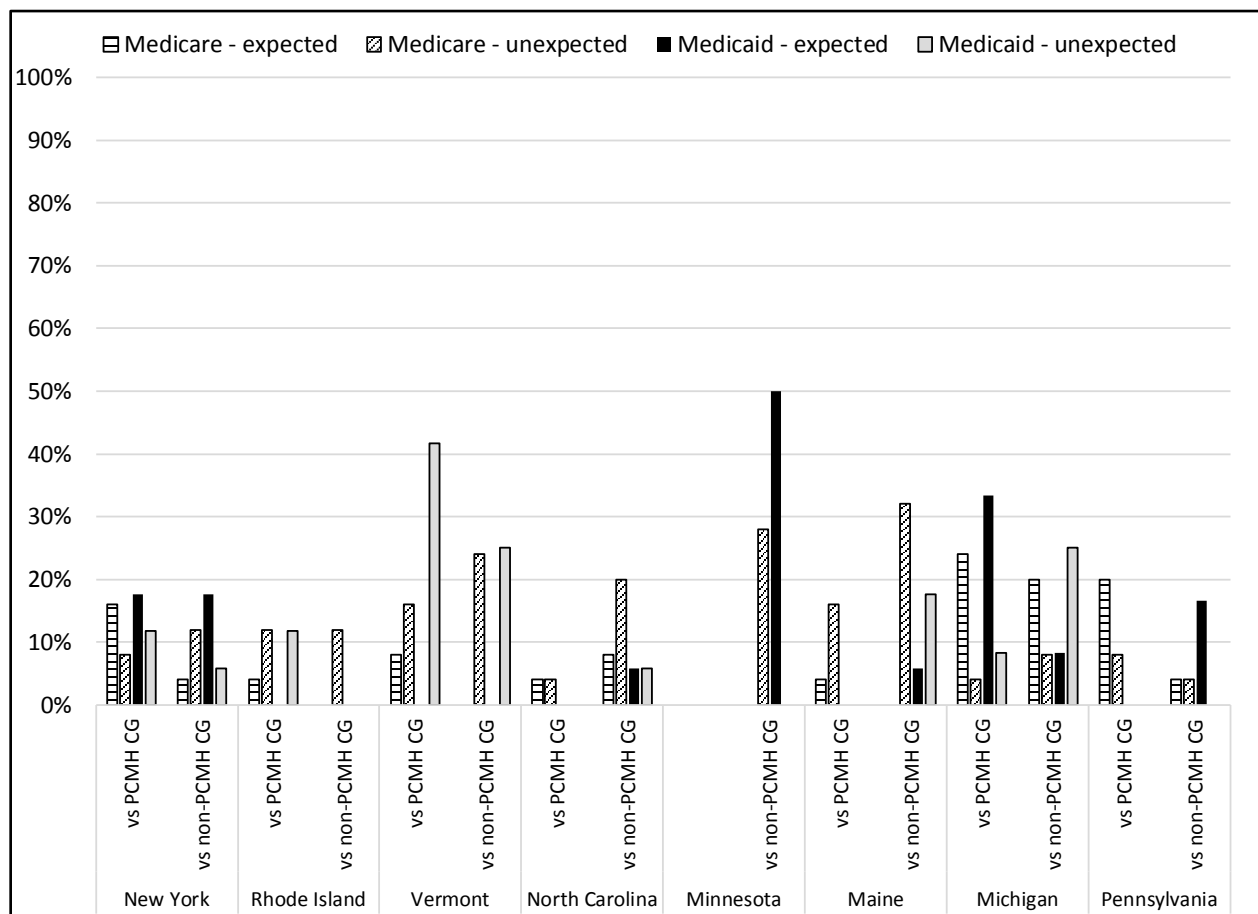
Avoidable events. This category includes avoidable catastrophic events and PQI admissions—overall, acute, and chronic. This analysis was performed only for the Medicare population.

- Among **Medicare beneficiaries with multiple chronic conditions**, average significant expected rates across all process-of-care measures were 4 percent relative to the PCMH and 3 percent relative to the non-PCMH CG practices. Average overall significant unexpected rates for the PCMH and non-PCMH CGs were 4 percent and 25 percent, respectively.

Results by state. **Figure 3-9** shows the expected and unexpected rates by state, CG, and beneficiary subpopulation across the selected outcomes. Most outcomes were not significant relative to either CG.

- No state stood out as achieving a high percentage of its outcomes in the expected direction, with all but two states having fewer than 30 percent of their outcomes in the expected direction. Minnesota had about half of its outcomes in the expected direction for the Medicaid adult population relative to the non-PCMH CG, and Vermont had about 40 percent of its outcomes in the expected direction for the Medicaid adult population relative to the PCMH CG.

Figure 3-9
Summary of expected and unexpected findings across the two CGs by state for outcomes among Medicare and Medicaid adults with multiple chronic conditions



NOTES:

- Rates shown are the proportion of findings in each state and CG that were significant in the expected direction (decrease) and the proportion significant in the unexpected direction (increase).
- Minnesota did not measure outcomes relative to a PCMH CG.

CG = comparison group; PCMH = patient-centered medical home.

3.5 Medicare Budget Neutrality of the MAPCP Demonstration Through December 2014

Table 3-19 summarizes budget neutrality results for the eight MAPCP Demonstration states through December 2014. The methods used for calculating budget neutrality are described in detail in *Section 1.2.7*. This effect quantifies the difference in the change in Medicare expenditures among beneficiaries assigned to MAPCP Demonstration PCMH practices relative to beneficiaries assigned to either PCMH¹³ or non-PCMH comparison practices not participating

¹³ In Minnesota, due to the absence of a PCMH CG, budget neutrality is estimated only relative to non-PCMH practices.

in the MAPCP Demonstration. **Table 3-19** shows gross savings, net savings, fees paid, and return on fees for each state separately and for the MAPCP Demonstration overall.

From the start of the MAPCP Demonstration through December 2014, only two states (Vermont and Michigan) had estimates of net savings that were positive and statistically significant. In both states, net savings were statistically significant relative only to PCMH practices. In Vermont, net savings were estimated as \$63,930,154. This translates into a return on fees (ROF) of 4.49 and means that for every dollar spent on fees in Vermont, there were savings of \$4.49 in Medicare expenditures relative to PCMH comparison practices. In Michigan, net savings were estimated as \$229,776,392. The ROF was 4.54, meaning that for every dollar spent on fees in Michigan, there were savings of \$4.54 in Medicare expenditures relative to PCMH comparison practices. In Pennsylvania, estimated gross savings were \$36,633,819 and statistically significant relative to the PCMH comparison practices, although after accounting for fees, estimated net savings were not statistically significant.

In the remaining five states, estimated net savings associated with the MAPCP Demonstration were almost all negative—in other words, net losses. The losses in Maine (compared with PCMH and non-PCMH practices) and Minnesota (compared with non-PCMH practices) were statistically significant.

Table 3-19
Estimates of gross savings, MAPCP Demonstration fees paid, and net savings vs. PCMH and non-PCMH comparison practices

State	Eligible beneficiary quarters	Total MAPCP Demonstration fees	Vs. PCMH			Vs. non-PCMH		
			Gross savings	Net savings	Return on fees	Gross savings	Net savings	Return on fees
New York	279,899	\$5,750,926	-\$3,892,202	-\$9,643,127	-0.68	\$8,118,395	\$2,367,470	1.41
Rhode Island	113,633	\$1,974,907	-\$12,383,617	-\$14,358,525	-6.27	-\$9,354,522	-\$11,329,430	-4.74
Vermont	760,427	\$18,340,927	\$82,271,080*	\$63,930,154*	4.49	\$61,754,919*	\$43,413,993	3.37
North Carolina	243,933	\$6,524,816	-\$7,674,949	-\$14,199,765	-1.18	-\$14,733,773	-\$21,258,589	-2.26
Minnesota	836,922	\$2,429,820	—	—	—	-\$85,495,768*	-\$87,925,588*	-35.19
Maine	424,920	\$12,313,581	-\$52,558,003	-\$64,871,584*	-4.27	-\$71,508,160*	-\$83,821,741*	-5.81
Michigan	2,265,099	\$64,938,363	\$294,714,755*	\$229,776,392*	4.54	\$140,492,980	\$75,554,617	2.16
Pennsylvania	324,051	\$5,338,237	\$36,633,819*	\$24,158,656^	2.94^	\$25,202,759	\$12,727,596^	2.02^

NOTES:

- Eligible beneficiary quarters: Sum of the number of eligible demonstration beneficiaries in each quarter of the demonstration to date. Eligible quarters are weighted by the eligibility fraction and exclude beneficiaries with fewer than 3 months of eligibility.
- Gross savings: A weighted average of the quarterly per beneficiary differences in expenditures associated with the demonstration multiplied by the number of eligible beneficiary quarters to date. A positive number indicates total gross savings. A negative number indicates a gross loss.
- Total MAPCP Demonstration fees: Sum of MAPCP Demonstration fees paid out for all eligible beneficiary quarters.
- Net savings: Total gross savings minus total MAPCP Demonstration fees paid.
- Return on fees: Gross savings divided by total fees.
- Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.

MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; — = not applicable.

* Statistically significant at the 10 percent level. Only gross and net savings were tested for statistical significance. Statistical testing was done only at the state level. Statistical significance cannot be determined for the total of gross or net savings across all states.

^ In Pennsylvania, net savings and return on fees include the shared savings payment of \$7,136,926 made by CMS in Year Three.

3.6 Discussion of Cross-State Findings

During the MAPCP Demonstration, the experience of the eight states demonstrated that practice transformation was challenging but not insurmountable. MAPCP Demonstration practices were successful at adopting health IT, providing care management, and increasing patient access via open access scheduling, expanded hours, after-hours coverage, telephone access, and online patient portals. However, practices were least likely to adopt patient engagement and self-management activities at a high level.

Despite the high rates of adoption of PCMH activities, the impacts of the state initiatives on quality of care, coordination of care, access to care, utilization, and expenditures were generally inconsistent, with some statistically significant favorable results and many significant unfavorable and non-significant results. Only two states had net savings for Medicare. These outcomes may be due in part to the relatively short timeline for the MAPCP Demonstration and the need for more resources. Although practices were successful at adopting health IT systems, there was still great difficulty with communication between MAPCP Demonstration practices and other providers due to compatibility issues. Similarly, although practices adopted care management at high levels, the number of care managers limited the number of beneficiaries who received care management services and thus the impact of the care management on the MAPCP Demonstration population.

CHAPTER 4 NEW YORK

Overview of New York Evaluation Results

The New York Adirondack Medical Home Demonstration (ADK Demonstration) launched in 2005 as a collaboration among local practices in a predominantly rural and traditionally underserved region of northeastern New York. The goal of the demonstration was to strengthen the region's primary care system and help stabilize the availability of primary care providers (PCPs). Medicare joined the ADK Demonstration in 2011 as one of nine participating payers—the most of any of the MAPCP Demonstration initiatives. Payers provided monthly care management fees to participating practices, subregional support organizations known as “Pods,” and the Adirondack Health Institute, Inc. (AHI), in addition to other support (e.g., utilization and expenditure data and practice transformation technical assistance).

Below are some of the key findings from the MAPCP Demonstration in New York:

- Approximately 29,000 Medicare beneficiaries and 47,000 Medicaid beneficiaries participated in the ADK Demonstration. In December 2014, the ADK Demonstration had 192 participating providers at 37 practices.
- CMS paid out nearly \$5.8 million in care management fees over the course of the demonstration to MAPCP Demonstration practices, Pods, and AHI to support the practice transformation infrastructure.
- During 14 quarters of the MAPCP Demonstration, there were no significant savings to Medicare attributable to the MAPCP Demonstration, either before or after accounting for the demonstration fees paid by Medicare. Similarly, the ADK Demonstration did not have a discernable impact on total expenditures for Medicaid beneficiaries.
- Although there was no overall reduction in total Medicare expenditures, one geographic area (the Lake George region supported by Pod 2) did show positive impacts on total Medicare expenditures. Practices in this area had more comprehensive and cohesive resources for practice management, data analysis and interpretation, and care coordination and management, which may have contributed to these findings.
- To improve access, New York required all participating practices to extend evening and weekend office hours. These extended hours may have contributed to the improvements in the likelihood of having a primary care visit among Medicaid adult and child beneficiaries and to reductions in the likelihood of having a medical or surgical specialist visit among adult Medicaid beneficiaries, relative to the comparison group (CG).

- Although practices focused efforts to reduce emergency room (ER) visits and preventable hospitalizations through rigorous care management services, there were no significant differences in ER visits for Medicare or Medicaid beneficiaries or preventable hospitalizations for Medicare beneficiaries. Despite efforts to increase access to the primary care practice, providers and patients still noted that timely access to care was a challenge, particularly due to PCP staffing shortages. This may explain the continued use of the ER for care as well as exacerbation of conditions that lead to preventable hospitalizations.
- Over the course of the demonstration, care managers were able to access hospital discharge information to identify hospitalized patients, assist with care transitions between the hospital and home or another community-based location, and schedule follow-up visits. These efforts may have contributed to reductions in unplanned readmissions among Medicare beneficiaries over time, although these changes were not statistically significant. However, rates of follow-up visits within 14 days after hospital discharge among Medicare beneficiaries did not improve over the course of the demonstration. Primary care shortages as well as variation in how care transition programs were implemented may explain the lack of improvement.
- To improve care coordination, Pods hired care managers to assist in making linkages between patients, other medical providers, and community resources. Beneficiaries were generally positive about such coordination, although some gaps were noted, including the need for more behavioral health care resources. No favorable impacts were observed for Medicare and Medicaid beneficiaries with behavioral health conditions, suggesting that additional improvements in care coordination for this population would be beneficial.
- Patients were generally pleased with the support they received from their providers in terms of engaging them in their care and partnering with them when it came to making health care decisions.
- Practices refined their use of care teams and electronic health records (EHRs) to identify and provide services to patients in need of evidence-based care. However, there was little evidence of discernable improvements in health outcomes or the quality of care for diabetes-related services and preventive care services for the Medicare and Medicaid populations.
- Several factors may have limited the impact of the ADK Demonstration on claims-based measures of access, quality, utilization, and expenditures. Participating practices varied considerably in their PCMH transformation efforts. Smaller, independent practices faced greater challenges in providing enhanced access, care coordination, and systematic use of data to improve patient care. Further, New York's health care environment became increasingly supportive of patient-centered primary care and other approaches to health care transformation, including widespread adoption of accountable care organizations (ACOs) and Medicaid health homes that comparison practices may have been exposed to during the evaluation period.

- Although payers faced challenges, the stakeholder engagement and decision-making processes created by the state gave all participants an equal voice and built strong relationships that kept all parties committed.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to the implementation of the ADK Demonstration, New York's pre-existing regional multi-payer initiative, which added Medicare as a payer to implement the MAPCP Demonstration. We report qualitative findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to New York in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in mid-2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from the ADK Demonstration practices more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient-centered medical home (PCMH) survey among Medicare FFS beneficiaries. Ten focus groups were held in New York: five in Glens Falls in July 2014, and five in Plattsburgh in August 2014. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Groups ranged in size from three to nine participants, for a total of 59 participants. See **Appendix O** for more details on focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to MAPCP Demonstration practices in New York from October through December 2013. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In New York, a 45 percent response rate was achieved with a total of 630 completed surveys, both of which exceeded the targets. See **Appendix S** for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we fielded an online survey of providers among all practices participating in the MAPCP Demonstration, including the 41 New York practices participating in the demonstration at the time of the survey. A total of 82 providers from 29 of the 41 New York practices completed the survey.

This chapter is organized by major evaluation domains. **Section 4.1** reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS beneficiaries participating in the ADK Demonstration. **Section 4.2** reports practice transformation activities. Subsequent sections report qualitative findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (**Section 4.3**); access to care and coordination of care (**Section 4.4**); beneficiary experience with care (**Section 4.5**); effectiveness as measured by health care utilization and expenditures (**Section 4.6**); and special populations (**Section 4.7**). The chapter concludes with a discussion of the findings (**Section 4.8**).

4.1 State Implementation

In this section, we present findings related to the implementation of the ADK Demonstration and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the past year, what major changes were made to the overall structure of the MAPCP Demonstration?
- Were any major implementation issues encountered over the past year, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in **Section 4.1.1**, which describes the major features of the state's initiative and the context in which it operates, draws on a variety of sources, including quarterly reports submitted to CMS by ADK Demonstration project staff; monthly calls between ADK Demonstration staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. **Section 4.1.2** presents a logic model reflecting our understanding of the link among specific elements of the ADK Demonstration and expected changes in outcomes. **Section 4.1.3** presents key findings gathered from the site visits regarding the implementation experience of state officials, payers, and providers during the evaluation period. **Section 4.1.4** concludes the State Implementation section with lessons learned.

4.1.1 New York State Profile as of December 2014

New York implemented the MAPCP Demonstration by adding Medicare as a payer to its pre-existing ADK Demonstration, a regional initiative in northeastern New York that began in 2005 as a collaboration among local practices seeking to strengthen the region's beleaguered primary care system. The collaborative had a specific focus on recruiting and retaining primary

care physicians practicing in rural communities. As these efforts developed, the New York State Association of Counties convened a 2007 Adirondack Healthcare Summit, at which planning began for a structured regional demonstration program. Early project support came from an \$85,000 Rural Health Networking grant from the Health Resources and Services Administration; financial support from the National Association for Community Health Centers and the New York State Medical Society; and grant-supported practice transformation consulting from EastPoint Health. The New York legislature formally recognized the ADK Demonstration in statute in 2009, and the ADK Demonstration officially began on January 1, 2010. Medicare began participating on July 1, 2011.

State environment. The New York State Department of Health (DOH) provided executive leadership for the ADK Demonstration. The state was designated as a supervisor to provide immunity under the state action immunity doctrine, which allowed payers to participate in anticompetitive practices for the purposes of the ADK Demonstration. The not-for-profit AHI provided program oversight in many roles, which included monitoring practice performance, aggregating clinical and financial data, planning for long-term sustainability, and serving as the central hub for subregional care management activities. A multistakeholder Governance Committee (also called the Governance Council), composed of participating payers and providers and chaired by NYS DOH, advised and guided AHI's work. In 2014, a new Executive Committee was formed from the larger stakeholder group that included representatives from the state, AHI, providers, and payers.

During the evaluation period, New York had several other initiatives and programs in the ADK Demonstration area and across the state operating concurrently with the MAPCP Demonstration that may have influenced health outcomes for participants in the ADK Demonstration or CG populations:

- In 2011, New York received approval for up to \$250 million in support from CMS to conduct a Hospital-Medical Home Demonstration Program, through which 156 residency clinics received National Committee for Quality Assurance (NCQA) PCMH recognition. That demonstration concluded at the end of 2014.
- In February 2013, New York received a \$1 million Model Pre-Test award in the first round of the State Innovation Models (SIM) Initiative. The award helped the state further develop and refine its care innovation plan, in which the PCMH is a central feature. During Year Three of our evaluation, New York received a \$99.9 million Model Test award as part of its second round of SIM funding.
- In December 2013, the New York State DOH formed the North Country Health Systems Redesign Commission, a multistakeholder group of 18 members representing health care systems, local businesses, and state and local government that was charged with improving the health care system in New York's North Country (a region within the larger Adirondacks). The redesign commission submitted a set of recommendations to the State Health Commissioner in March 2014, which included a call to expand the ADK Demonstration to other counties and payers.

- In January 2014, New York implemented the option under the Affordable Care Act (ACA) to expand Medicaid eligibility to all adults with incomes of up to 138 percent of the federal poverty level (FPL).¹

Demonstration scope. The ADK Demonstration was limited to practices in Clinton, Essex, Franklin, and Hamilton counties (an area of approximately 7,000 square miles bordering Canada and Vermont) and select federally qualified health centers (FQHCs) in Saratoga, Warren, and Washington counties. The participating practices were grouped into three geographical Pods: Lake George, Tri-Lakes, and Northern Adirondacks. Each Pod, described as a “mini-disease-management company,” supported practices in its subregion with shared services for patient outreach, health education, self-management, community resource integration, and care coordination. Although the structure and size of each Pod team differed, all teams included an administrative director, a clinical care management leader, nurses, pharmacists, social workers, and health educators.

In July 2011, Medicare joined as the final payer in the state’s multi-payer initiative and began making per beneficiary per month (PBPM) payments to 42 pilot practices located across the three Pods, expecting that each practice would undergo practice transformation, adopt health information technology (health IT) tools, and work with the Pods to deliver coordinated, whole-person care. *Table 4-1* shows participation in the ADK Demonstration at the end of the first, second, and third years of the demonstration and the end of the evaluation period (December 31, 2014). Between the end of Year One to the end of the evaluation period, participating practices with attributed Medicare FFS beneficiaries decreased by 5 percent, from 39 to 37 practices. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, but, in each year, pediatric practices participating in the ADK Demonstration and receiving Medicaid payments were included. As a result, the number of Medicaid participating practices was slightly higher than the number of Medicare participating practices. The number of providers at participating practices with attributed Medicare FFS beneficiaries increased by 7 percent over this period, from 180 to 192. Across all payers, the number of practices in the ADK Demonstration remained constant throughout the MAPCP Demonstration, except at the end of Year Two when a practice was added. The number of providers at these 41 all-payer practices increased slightly from 204 to 210 during the demonstration.

The cumulative number of Medicare FFS beneficiaries ever participating in the demonstration for 3 or more months increased by 36 percent over this period, from 21,441 to 29,093, due to rolling attribution over time as newly eligible beneficiaries were attributed to participating practices. The cumulative number of Medicaid beneficiaries who ever participated for 3 or more months increased by 91 percent, from 24,794 to 47,271, over the evaluation period.

The state originally projected that it would include 113,609 individuals in ADK Demonstration practices across all payers by the end of the demonstration. The number of all-payer participants decreased by 2 percent over the course of the MAPCP Demonstration, falling short of the projected participation target by 20,347 individuals, or 18 percent.

¹ The ACA expanded Medicaid eligibility to individuals with incomes up to 133 percent of the FPL; however, there is a 5 percent income disregard, so the income limit is effectively 138 percent of the FPL.

Table 4-1
New York: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants² participating in the New York ADK Demonstration

Participating entities	Number as of June 30, 2012	Number as of June 30, 2013	Number as of June 30, 2014	Number as of December 31, 2014
Medicare				
ADK Demonstration practices ¹	39	37	37	37
Participating providers ¹	180	189	181	192
Medicare FFS beneficiaries ²	21,441	24,771	27,707	29,093
Medicaid				
ADK Demonstration practices ³	40	38	38	38
Medicaid beneficiaries ³	24,794	32,279	42,761	47,271
All-payer				
ADK Demonstration practices ⁴	41	42	41	41
Participating providers ⁴	204	209	217	210
All-payer participants ⁴	94,690	100,809	100,033	93,262

NOTES:

- For Medicare, ADK Demonstration practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating ADK Demonstration practices and participated in the demonstration for at least 3 months. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating ADK Demonstration practices and participated in the demonstration for at least 3 months.
- For Medicaid, ADK Demonstration practices include only those practices with attributed Medicaid beneficiaries. This group included pediatric practices participating in the ADK Demonstration.
- The number of participating Medicaid providers could not be determined using the Medicaid FFS claims and managed care encounter files.
- The all-payer numbers are derived from the state using its own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ADK = Adirondack Medical Home; ARC = Actuarial Research Corporation; CMS = Centers for Medicare & Medicaid Services; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice.

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³New York Medicaid enrollment and claims files (see Chapter 1 for more detail about these files); ⁴New York Quarterly Reports to CMS.

Nine payers participated in the ADK Demonstration: Medicare FFS (23% of total participants as of December 2014), Medicaid FFS (3%), Fidelis (22%), The Empire Plan (11%),

² The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a ADK Demonstration practice and participated in the ADK Demonstration for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent-to-treat design of our evaluation. The number of all-payer participants also represent the number of individuals who were ever attributed to a ADK Demonstration practice.

Excellus (23%), Mohawk Valley Plan (3%), Blue Shield of Northeastern New York/Health Now (4%), Capital District Physicians' Health Plan (6%), and Empire Blue Cross Blue Shield (BCBS) (5%). Fidelis was a Medicaid managed care plan, and The Empire Plan (administered by United Healthcare) was the state and local government employee health care plan. The five remaining private carriers participated on behalf of their commercial products, including some participation among administrative services-only purchasers. Due to the shift to mandatory managed care in the region, most New York Medicaid beneficiaries were enrolled in managed care by the end of the evaluation period.

Table 4-2 displays the characteristics of the practices with attributed Medicare FFS beneficiaries and the characteristics of the practices with attributed Medicaid beneficiaries participating in the ADK Demonstration as of the end of the evaluation period (December 31, 2014). There were 37 participating practices with attributed Medicare beneficiaries, with an average of five providers per practice. Most were either office-based practices (60%) or FQHCs (38%); 2 percent were critical access hospitals (CAHs), and none were rural health clinics (RHCs). Approximately one-quarter were located in metropolitan counties (24%), over half were located in micropolitan counties (54%), and less than one-quarter were located in rural counties (22%). There were 38 participating practices with attributed Medicaid beneficiaries; 61 percent were office-based practices, 37 percent were FQHCs, and 3 percent were CAHs.

Table 4-2
New York: Characteristics of practices participating in the New York ADK Demonstration as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	37	38
Number of providers (total)	192	—
Number of providers per practice (average)	5	—
Practice type (%)		
Office-based practice	60	61
FQHC	38	37
CAH	2	3
RHC	0	0
Practice location type (%)		
Metropolitan	24	—
Micropolitan	54	—
Rural	22	—

NOTE: New York did not provide a count of the unique number of participating MAPCP Demonstration Medicaid providers. Practice location type could not be determined using the Medicaid claims files.

ADK = Adirondack Medical Home; ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = rural health clinic; — = data not available.

SOURCES: ¹ARC Q14 MAPCP Demonstration Provider File; ²New York Medicaid Enrollment and Claims Files. (See Chapter 1 for more detail about these files.)

In **Table 4-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating ADK Demonstration practices during the evaluation period (July 1, 2011, through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration were not included in our evaluation or this analysis. Twenty-five percent of beneficiaries were under the age of 65, 43 percent were between ages 65 and 75, 23 percent were between ages 76 and 85, and 9 percent were over 85. The mean age was 68. Beneficiaries were nearly all White (97%), 29 percent lived in urban areas, and more than half were female (56%). Twenty-four percent were dually eligible for Medicare and Medicaid, and 33 percent were eligible for Medicare originally due to disability. One percent of beneficiaries had end-stage renal disease (ESRD), and less than 1 percent resided in a nursing home during the year before their assignment to an ADK Demonstration practice.

Table 4-3
New York: Demographic and health status characteristics of Medicare FFS beneficiaries participating in the New York ADK Demonstration from July 1, 2011 through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	29,093
Demographic characteristics	
Age < 65 (%)	25
Age 65–75 (%)	43
Age 76–85 (%)	23
Age > 85 (%)	9
Mean age	68
White (%)	97
Urban place of residence (%)	29
Female (%)	56
Dually eligible beneficiaries (%)	24
Disabled (%)	33
ESRD (%)	1
Institutionalized (%)	0
Health status	
Mean HCC score groups	1.02
Low risk (< 0.48) (%)	24
Medium risk (0.48–1.25) (%)	53
High risk (> 1.25) (%)	24
Mean Charlson Index score	0.79
Low Charlson Index score (= 0) (%)	63
Medium Charlson Index score (≤ 1) (%)	18
High Charlson Index score (> 1) (%)	19
Chronic conditions (%)	
Essential hypertension	33
Lipid metabolism disorders	20
Diabetes without complications	16

(continued)

Table 4-3 (continued)
New York: Demographic and health status characteristics of Medicare FFS beneficiaries participating in the New York ADK Demonstration from July 1, 2011 through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	12
Coronary artery disease	
Other respiratory disease	12
Cardiac dysrhythmias and conduction disorders	10
Acute and chronic renal disease	6
Anemia	6
Disorders of joint	6
Hypothyroidism	6
Chest pain	5
Dizziness, syncope, and convulsions	5
Heart failure	4
Urinary tract infection	4
Diabetes with complications	3
Renal failure	3
Valve disorders	2
Peripheral vascular disease	2
Malaise and fatigue (including chronic fatigue syndrome)	2
Cardiomyopathy	1
Dementias	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the OMB.

ADK = Adirondack Medical Home; EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we described beneficiaries’ health status during the year before their assignment to an ADK Demonstration practice. HCC scores for Medicare beneficiaries assigned to an ADK Demonstration practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to an ADK Demonstration practice had a mean HCC score of 1.02, meaning that they were predicted to be 2 percent more costly than an average Medicare FFS beneficiary. Beneficiaries’ average score on

the Charlson Comorbidity Index was 0.79.³ Just under two-thirds (63%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions contained within the index in the year before their assignment to a participating ADK Demonstration practice. The most common chronic conditions diagnosed were hypertension (33%), lipid metabolism disorders (20%), diabetes without complications (16%), coronary artery disease (12%), other respiratory disease (12%), and cardiac dysrhythmias and conduction disorders (10%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In **Table 4-4**, we report demographic and health status characteristics of Medicaid beneficiaries assigned to participating ADK Demonstration practices during the evaluation period (July 1, 2011, through December 31, 2014). Beneficiaries dually enrolled in Medicaid and Medicare were excluded from this table because they were included in the table above. Forty-seven percent of the Medicaid beneficiaries were children, with a mean age of 6 years, and the remaining 53 percent of Medicaid beneficiaries were adults, with a mean age of 35 years. An estimated 30 percent to 40 percent of ADK Demonstration Medicaid beneficiaries resided in an urban area, and the majority were White. The proportion of ADK Demonstration Medicaid beneficiaries that was female was 48 percent among children and 59 percent among adults. Seven percent of child Medicaid beneficiaries were eligible for Medicaid due to disability, compared with 17 percent of adult Medicaid beneficiaries. Child ADK Demonstration Medicaid beneficiaries had relatively few chronic conditions (6% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score of 1.0.⁴ In contrast, adult ADK Demonstration Medicaid beneficiaries had significantly more chronic conditions (31% had three or more chronic conditions) and a CDPS score of 1.9.

³ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples' Charlson Comorbidity Index, the greater morbidity in the study sample.

⁴ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples' CDPS scores, the greater morbidity in the study sample.

Table 4-4
New York: Demographic and health status characteristics of Medicaid beneficiaries participating in the New York ADK Demonstration from July 1, 2011, through December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	22,376	24,895
Demographic characteristics		
Mean age	6	35
White (%)	90	91
Urban place of residence (%)	30	40
Female (%)	48	59
Medicaid eligibility due to disability (%)	7	17
Other Medicaid eligibility (%)	93	83
Institutionalized (%)	0.02	0.28
Health status		
Mean CDPS score groups	1.0	1.9
Low birth weight and serious perinatal problems (%)	3	0
Mean number of chronic conditions	0.7	1.8
0 chronic conditions	60	45
1–2 chronic conditions	34	25
3 or more chronic conditions	6	31

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using New York Enrollment and Claims files, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the OMB.

ADK = Adirondack Medical Home; CDPS = Chronic Illness and Disability Payment System; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: New York Medicaid Enrollment and Claims Files.

Practice expectations. New York required all participating providers to obtain Level 2 or Level 3 NCQA Physician Practice Connection Patient-Centered Medical Home (PPC® - PCMH™) recognition within 12 months of joining the ADK Demonstration, although this deadline was extended to 18 months for some practices. Every participating practice met this requirement, and most practices subsequently transitioned to the 2011 PCMH standards. New York also required practices to meet the following criteria:

- Use an electronic prescribing system within 7 months of the program's start.
- Participate in a disease registry and develop data reporting capabilities to enable reporting on access to care, clinical processes, clinical outcomes, and patient experience of care using common metrics and methods.
- Offer expanded access, including 24-hour-a-day, 7-day-a-week telephone access.
- Provide same-day scheduling for urgent care.

Support to practices. Commercial payers, Medicaid FFS, and Medicaid managed care plans began payments to participating practices on June 1, 2010 (retroactive to January 1, 2010). Medicare FFS payments began just over 1 year later, on July 1, 2011. In total, participating payers made an additional \$84 in payments per member per year for each patient participating in the ADK Demonstration, equivalent to \$7 per member per month (PMPM).⁵ Payers had the option of making this payment through either an enhanced visit rate subject to reconciliation or through a separate recurring payment. New York gave payers the discretion to decide the frequency of any recurring payments (e.g., monthly, quarterly, semiannually).

Practices agreed to a payment arrangement in which a portion of the \$7 PMPM payment was kept by the practices and the remaining amount was split between the Pod and AHI. New York's MAPCP Demonstration application noted that, as a monthly payment, \$3 would go to the Pod and \$0.50 to AHI. Each Pod implemented the payment methodology somewhat differently to complement the structure of its Pod.⁶ In late 2012, stakeholders reached an agreement to earmark \$0.50 of the \$7 PMPM for pay-for-performance (P4P) based on the following areas: member satisfaction, utilization (admission rates, preventable ER visits, and readmissions), and development of a practice improvement plan. The first P4P distribution was made to practices in May 2014. Between July 1, 2011, and December 31, 2014, practices received a total of \$5,764,532 in Medicare MAPCP Demonstration payments for beneficiaries assigned to their practices during the demonstration (including portions received by AHI and the Pods).⁷ The average Medicare payment per practice over the demonstration was \$144,113 (*Table 4-5*).

Table 4-5
New York: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Average Medicare payment per practice¹	Total Medicare payments¹
Year One	\$41,945	\$1,593,928
Year Two	\$42,408	\$1,653,899
Year Three	\$46,304	\$1,666,942
Year Four	\$23,605	\$849,762
Overall	\$144,113	\$5,764,532

NOTES:

- The Overall amounts include Years One, Two, and Three and two additional quarters ending December 31, 2014.
- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.
- Total Medicare payments includes payments to practices, AHI, and the Pods.

AHI = Adirondack Health Institute; MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: ¹Medicare claims data

⁵ Medicare PBPM payment amounts do not reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

⁶ In Pod 1 (Tri-Lakes), practices received the \$7 PMPM, paid \$0.50 PMPM to AHI, and purchased care management services from the Adirondack Medical Center. In Pod 2 (Lake George), Hudson Headwaters Health Network, which employs the providers and care managers, received the full payment and paid \$0.50 PMPM to AHI. In Pod 3 (Plattsburgh), \$4 PMPM went to practices, which paid \$0.50 PMPM to AHI, and \$3.50 went to the Pod.

⁷ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

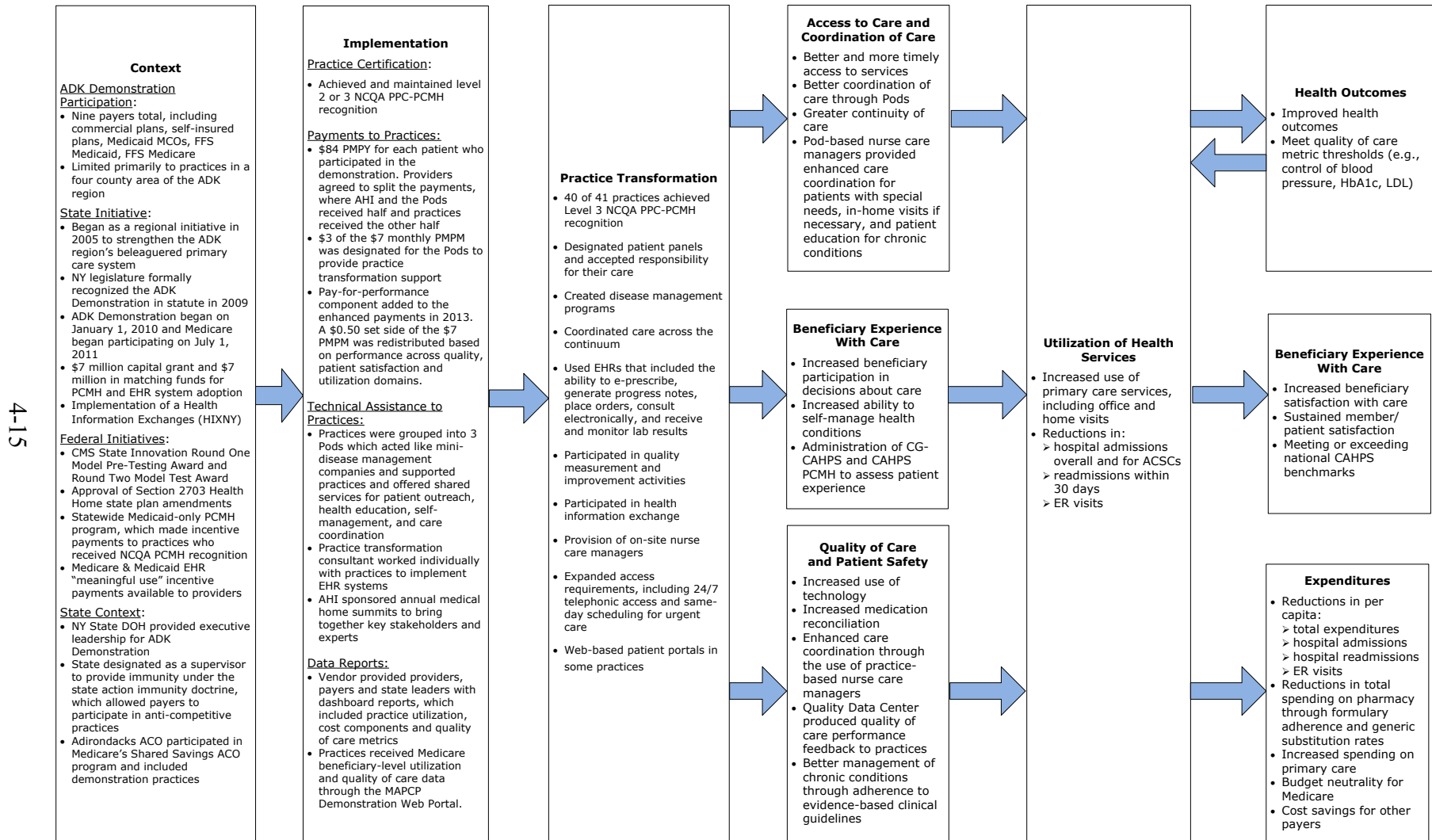
Multiple sources provided data to support providers and aggregate performance reporting. Health Information Xchange New York (HIXNY), New York's health information exchange (HIE), worked collaboratively with the Massachusetts e-Health Collaborative (MAeHC) and the providers' seven EHR vendors to build a physical infrastructure for clinical quality data storage and sharing. HIXNY uploaded EHR data daily, and data were held in a data warehouse (Quality Data Center) housed by MAeHC. The Quality Data Center provided dashboard functionality for providers' clinical quality of care performance data. In addition, Treo Solutions managed the program's all-payers claims database (APCD). The database and data warehouse provided data to allow participating practices, health care plans, and the Pods to identify gaps in care, manage patients' chronic diseases, and support case management.

Treo Solutions also provided feedback reports (known as the Adirondack Region Medical Home Dashboard) to practices, Pod administrators, payers, and state officials using an electronic system that aggregated utilization and expenditure data at the Pod, practice, and provider levels. The dashboard included patient survey data, utilization measures from the claims data warehouse (including Medicare FFS data provided by CMS), and expenditures taken from EHRs. Practices were able to use patient-specific data for quality improvement. In 2014, stakeholders held discussions to contract with a new vendor (Northern New England Accountable Care Collaborative [NNEACC]) to administer the services previously provided by Treo Solutions and MAeHC. However, these discussions were discontinued in early 2015, and Treo Solutions remained the vendor for these services through June 30, 2016.

4.1.2 Logic Model

Figure 4-1 is a logic model of the ADK Demonstration meant to depict the hypothesized relationship between specific elements of the ADK Demonstration and changes in outcomes. The first column describes the context for the demonstration, including its scope, other state and federal initiatives that affect the state's initiative, and key features of the state context, such as the broad payer participation and various state and federal initiatives underway in New York. The demonstration context affected the implementation of the ADK Demonstration, including practice certification requirements, payments to practices, provision of technical assistance to practices, and data reports provided to practices. Implementation activities were expected to promote transformation of practices to PCMHs, reflected in care processes and activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher-quality care; to have a better patient experience with care; and to be more engaged in decisions about treatments and management of their conditions. These improvements promoted more efficient utilization of health care services, including reductions in inpatient admissions, readmissions, and ER visits and increases in primary care visits. These changes in utilization were expected to produce further changes, including improved health outcomes, improvements in beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for the Medicare program and cost savings for other payers. Improved health outcomes, in turn, were likely to reduce utilization further.

Figure 4-1
Logic model for New York ADK Demonstration



ACO = accountable care organization; ACSC = ambulatory care sensitive conditions; ADK = Adirondack Medical Home; AHI = Adirondack Health Institute; CG-CAHPS = Consumer Assessment of Healthcare Providers and Systems Clinician & Group Survey; CMS = Centers for Medicare & Medicaid Services; DOH = Department of Health; EHR = electronic health record; ER = emergency room; FFS = fee-for-service; HIXNY = Health Information Xchange New York; LDL = low-density lipoprotein; MAPCP = Multi-Payer Advanced Primary Care Practice; MCO = managed care organization; NCQA = National Committee for Quality Assurance; NY = New York; PCMH = patient-centered medical home; PMPM = per member per month; PMPY = per member per year; PPC®-PCMH™ = Physician Practice Connection Patient-Centered Medical Home.

4.1.3 Implementation

This section uses primary data gathered from site visit interviews conducted in Years One, Two, and Three and other sources to present key findings from the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 4.1*.

Major Changes During the Evaluation Period

Some changes were made to the ADK Demonstration over the course of the MAPCP Demonstration evaluation period. The most significant change was made in 2013, when a portion of practice payments began to be set aside for a P4P program. This change in payment and other notable changes are discussed below.

Distribution of P4P incentive payments. Since January 1, 2013, practices set aside \$0.50 of their enhanced payments to fund a P4P incentive pool. Five quarters later, in May 2014, the first semiannual P4P redistribution payments—based on plans’ performance across quality, patient satisfaction, and utilization domains—were distributed. Interviewees did not report any difficulties in collecting or redistributing the payments, but one state official noted that it was difficult to get the practices to buy in: “[Providers] fundamentally hate [P4P] ... The world, including us, underestimates how providers have an allergic reaction to it.” Further, having built the ADK Demonstration on collaboration and a sense of community across providers, the state official felt that the P4P payments introduced competition, which created some discomfort among stakeholders. Criticisms about the first set of P4P metrics noted that the measures were outdated, not relevant, and not important to providers or patients, but state officials, program leaders, and payers all said that participating payers wanted to increase the proportion of payment tied to practice performance or savings.

Creation of an Executive Committee. In 2014, the ADK Demonstration modified its governance structure by creating a new Executive Committee, essentially a subcommittee of the larger Governance Committee. State officials and payers noted that it was difficult to work through the minutiae in the larger governance meetings, and the Executive Committee helped streamline the process. As described by program leaders, the Executive Committee was able to “tease out the issues quickly” before bringing its findings and recommendations to the larger group for voting. State officials further praised the creation of the Executive Committee, noting that it reduced the time and resources spent by state staff, which would make the initiative more self-reliant and sustainable in the long run.

The consensus-based decision-making process, a hallmark of the ADK Demonstration, did not change during the evaluation period. State officials and other program leaders agreed that, although difficult, consensus-based decision making strengthened participants’ connection and loyalty to the program. When asked whether any members of the larger Governance Committee felt left out, one Executive Committee member noted that Pods and payers were equally represented, and a second noted that participation was voluntary and open to all who were interested. At the time of the Year Three site visit, the Executive Committee was meeting biweekly, and its work focused mainly on what changes might be made to the program over the next 2 years.

Other notable changes. New York Medicaid increased its enhanced FFS visit rate from \$28 to \$32 during the evaluation period to maintain the \$84 per member per year payment after the average number of primary care visits fell slightly from 3 to 2.6 percent. Payers also tweaked the attribution methodology early during the evaluation period (mainly in Year One), adding additional evaluation and management (E&M) immunization administration codes throughout the demonstration to match individuals more accurately with their PCPs.

Major Implementation Issues During the Evaluation Period

Data challenges persisted throughout the evaluation period. State officials, providers, and payers all acknowledged that data lags limited the effectiveness of the provider dashboards, and program leaders sought new data vendors to administer both the claims and clinical data warehouses.⁸ P4P payments were delayed due in part to providers' concerns at the time that the proposed performance measures were outdated or not important to providers or patients. Demonstration leaders held meetings with practices to clarify how the measures were calculated for the P4P payments, which reportedly eased provider concerns. The attribution process also presented challenges over the 3 years. Some payers reported greater difficulties than others, in that reconciling differences between payers and practices was largely a time-consuming, manual process. The number of participants attributed to each commercial plan varied widely quarter to quarter. Each commercial payer reported at least one change in attributed members of greater than 20 percent from one quarter to the next; most commercial payers experienced multiple swings of 20 percent or more. This variation was due in part to individuals changing health plans during open enrollment or being added or dropped from the attribution list based on service utilization; however, some of the changes could not be fully explained.

External and Contextual Factors Affecting Implementation

Other state health reform initiatives. Fueled by Governor Cuomo's Medicaid Redesign Team, the North Country Health Systems Redesign Commission, and opportunities created by the ACA, participating ADK Demonstration payers and providers participated in a number of concurrent health care reform initiatives during the MAPCP Demonstration period. For example, in addition to its role in the ADK Demonstration, AHI served as a lead health home entity. Providers in all three Pods were members of the Adirondacks ACO, which participated in the Medicare Shared Savings Program. ADK Demonstration payers were also involved in other single- or multi-payer PCMH initiatives across the state. For example, New York Medicaid participated in at least three other PCMH initiatives, including a statewide Medicaid-only program, a Hospital-Medical Home Demonstration Program, and the federal multi-payer comprehensive primary care initiative (CPC). Three of the commercial payers participating in the ADK Demonstration also participated in CPC, but the practices receiving primary care transformation support from this initiative were in an adjacent region of the state outside of the Adirondack region (Hudson Valley). Moreover, these programs included practice expectations and payment methodologies that did not fully align with the ADK Demonstration model, which may have created administrative barriers for the participating payers.

⁸ The ADK Governance Committee eventually negotiated a contract extension with the original vendor after negotiations with an alternative vendor ended.

Although participating providers, payers, and state leaders were faced with competing priorities and resources for these different programs, there were no reports that the other initiatives had a negative impact on the ADK Demonstration. One program leader reiterated that the ADK Demonstration was aligned with other multi-payer work in the region but acknowledged that the time involved in coordinating multiple initiatives was challenging. Many other stakeholders interviewed during the site visits were also quick to note that the contemporaneous reform efforts were complementary or built upon one another.

Physician recruitment. The original intent of the ADK Demonstration was not only to test payment and delivery system reforms but also to serve as a workforce development initiative. With an aging workforce and the movement of younger physicians out of the region, recruitment and retainment always were among the initiative's primary goals. Although the number of providers in the region did not grow significantly, losses were stemmed and employment levels remained steady. Physician recruitment remained a priority for all three Pods throughout the evaluation period.

Effect of Medicare's Decision to Extend the MAPCP Demonstration in New York

Program sustainability. Stakeholders were very grateful that Medicare decided to extend its participation in the ADK Demonstration through 2016. One program leader pointed out that Medicare accounts for roughly 20 percent of practices' enhanced payments, noting that much of the care coordination and IT infrastructure would be unsustainable at 80 cents on the dollar.

Additional time to refine and test the model. The extension allowed additional time to refine the model and, in particular, the payment methodologies. One state official noted that participating payers were not interested in keeping the status quo for 2 additional years: "There's an itch for payment reform." Payers were particularly interested in developing and implementing new accountable payment methodologies, including putting additional portions of the payment at risk through expanded P4P or shared savings methodologies. The extension also allowed the state to collect additional (and potentially more robust) data to evaluate quality and cost outcomes.

4.1.4 Lessons Learned

Collaboration and trust between providers and payers is key to an initiative's success. New York's ADK Demonstration had the highest reported number of participating payers of any initiative within the MAPCP Demonstration, and, despite participation being voluntary, no payer dropped out. Although payers experienced challenges and frustrations throughout the years, the stakeholder engagement and decision-making processes created by the state gave all participants an equal voice and built strong relationships that kept all parties committed.

Payment alignment is more important in some areas than others. Compared with other MAPCP Demonstration states, New York's cross-payer alignment was much stronger than most. This was particularly important in the early years, because participants felt that they were "all in this together." Although some state officials, program leaders, and even payers felt that alignment was New York's "secret sauce," other interviewees (including one state official)

questioned whether providing the plans greater flexibility would have been detrimental to the demonstration.

Importance of NCQA PCMH recognition. Even though the value placed by payers on NCQA PCMH recognition waned in the later years, stakeholders recognized that the demonstration would not have been possible without the initial push for NCQA PCMH recognition. Practice transformation was time consuming and expensive, and small rural providers in particular were more likely to lack the resources necessary to achieve higher levels of NCQA recognition (a requirement for participation in the demonstration). Although there were still some free riders (some self-insured employers and Medicare Advantage [MA] plans), the critical mass of payers providing additional resources made practice transformation possible. As one program leader said, “I don’t think there is anyone that would say that NCQA wasn’t an important part [of the demonstration].” The interviewee’s point was that having a common set of benchmarks and milestones was important to get practices moving in the same direction, rather than an endorsement of NCQA over other national or home-grown standards.

4.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the demonstration and patients’ awareness of these changes, drawing on data from our focus groups and our three site visits (*Section 4.2.1*). We then present practices’ experiences using technical assistance provided as part of the demonstration (*Section 4.2.2*) and practices’ views on the payment model used in this demonstration (*Section 4.2.3*), drawing on data from our site visits. Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (*Section 4.2.4*). We synthesize the site visit and survey findings in *Section 4.2.5*.

4.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. All participating ADK Demonstration practices received NCQA PPC[®]-PCMH[™] recognition under the 2008 standards in the early years of the demonstration. At the time of our last site visit in 2014, all practices had either completed or were in the process of completing their recognition for the 2011 standards. Practices participating in the ADK Demonstration made progress in practice transformation improvements during the evaluation period, particularly in their care management processes. Providers and other stakeholders generally felt positive about the progress of implementation, but a few providers did not feel that their input was consistently being heard or valued across the demonstration. Another concern was the many reporting requirements for various state and federal initiatives, which made it difficult for practices to keep up and still have adequate time for direct patient care. Finally, we heard throughout the evaluation period that practices, and the region as a whole, needed additional resources to support behavioral health care.

ADK Demonstration practices and other stakeholders told us that key practice transformation initiatives during the evaluation period included improvements on how practices targeted higher-risk patients and how care was coordinated for patients in care transitions. In particular, ADK Demonstration practices and their care manager teams paid closer attention to patients recently discharged from the hospital. According to one practice, “The [hospital] discharge planners are on the floors. They talk to our [practice] nurses who coordinate care in

our office.” Many ADK Demonstration practices received lists of patients recently discharged and assigned their embedded care coordination staff to ensuring appropriate follow-up. One practice described an effective working relationship that coordinated care between the hospital and the practice for discharged patients: “The transitional care nurse in the hospital and the embedded nurse in our practice coordinate discharges, so we do follow-up visits within a week. We get all the info before the visit. That’s a manual flow of info through nurses talking to each other. Transitional care nurses let us know about a discharge within 3 to 4 days, and our embedded nurse puts a stack of papers on my desk when the visit comes up. That’s working.” Medicare payment for transition care apparently was one factor that increased the attention paid to transition patients.

Health IT continued to play an increasingly important role in practices during the evaluation period. Many practices refined their EHRs to become more efficient and customized to their patients’ needs.

With respect to practice transformation and PCMH sustainability after the demonstration ended, stakeholders remarked that the ADK Demonstration had several unintended benefits. One was preparing practices to attest to meaningful use, and another was transitioning practices to participate in ACO structures. Practices in Pod 1 were almost all members of the new ACO in that region, and the ACO in Pod 2 was well established. Most practitioners felt that the jury was still out on the ACOs’ ultimate impact, but several identified the ACO as a likely successor to the ADK Demonstration when it came to an end. Some practices in Pod 3 not participating in an ACO were more uncertain about the future, and they anticipated layoffs if or when the demonstration funds ceased.

Practice staffing changes. Most major staffing changes needed to support the ADK Demonstration were made during Years One and Two. In Year Three, practices made more incremental changes, mostly focusing on clarifying staff roles within care teams and addressing problems with turnover. For example, nurses triaged lower-risk patients calling into the practice with questions or concerns and scheduled appointments with the provider when that was most appropriate.

Most of the staff added during Year Three were used for care coordination. In Pod 3, for example, 11 of the 16 nurses trained for the care management function were embedded as care managers within the practice setting, and the remaining five worked from a central location to serve all Pod 3 practices, mostly for transitions of care needs among patients being discharged from the hospital and returning to the community. Practices across the demonstration felt that the role of nurses and care coordinators became more clearly defined over time, and physicians increasingly saw how care managers actually made a difference in improving care coordination for their patients. One practice in Pod 3 began with a list of about 80 complicated patients—those who were repeat ER visitors and had frequent hospitalizations, for example—and the embedded care manager found ways to get them coverage for more sophisticated, expensive drugs often not covered by insurers. Another practice noted the value of the care manager in assisting patients with complicated transitions of care, such as those requiring anticoagulation management after hospitalization.

Several practices mentioned efforts to develop or enhance team-based care. In the words of a provider, “We’re trying—it’s always a work in progress—taking a team approach. We have different levels of staff [medical assistants, nurses] who will go through my schedule in advance [to enhance care coordination for patients identified as needing the extra intervention].” This provider also noted that front desk staff took more initiative in scheduling and working across the care teams to schedule patients at times that best accommodated everyone’s schedules. All practices continued to offer 24-hour-a-day, 7-day-a-week access, and half mentioned working on new programs to open or expand same-day, open-access appointments for the most urgent needs. Many practices made efforts to get patients seen right away, or within a day or two at most, for more urgent needs.

Health IT. All participating practices worked during the evaluation period to use performance data more effectively to improve quality. Many, but not all, of these initiatives were directed at the performance targets set by the ADK Demonstration. Most practices used data generated from their own EHRs to identify, for example, patients needing screening tests or attention for diabetes control. Pod 2 practices generated quarterly, provider-specific score cards on the key quality metrics, along with comparison data allowing them to benchmark themselves against both their peers and the network averages. One provider remarked that he looked at 30 measures at any given time, and he rotated these to highlight all the areas for improvement. According to our MAPCP Demonstration provider survey, discussed in greater detail in **Section 4.2.4**, a large share of New York providers reported using EHRs for clinical decision support and generation of quality measure data. Nearly all New York providers (99%) reported a high level of EHR adoption, compared with the average for all MAPCP Demonstration states (93%). This finding is statistically significant at the 10 percent level.

Another health IT driver for quality improvement was the incentive to meet the CMS EHR meaningful use targets. One practice, for example, used an embedded tool to document improved communication with patients through the EHR-connected patient portal. One practice embarked on quality initiatives independent of EHR meaningful use requirements. These initiatives instead centered on making sure that a list of “problem patients” was accurate, that diagnoses were adequately justified and documented, and that each patient’s medications aligned with the diagnoses and were appropriately reconciled. Referring to efforts to validate diagnoses, one practitioner commented, “It’s quality. If we get that right, then the next person has the [correct] info to work with.”

Not all practices were enthusiastic about the use of data to improve performance. One practitioner commented on the onerous and ever-expanding documentation requirements for quality measurement: “From our perspective, a lot of the stuff that has been pushed, we were already doing, and we’re just documenting it now.” Another provider lamented that the focus on a small set of discrete measures seemed to be based on whatever was convenient to measure, not on major factors determining quality of care.

All ADK Demonstration practices had functioning EHRs, and some practice staff were delighted with their health IT functionality, especially in Pod 2, where all practices used the same EHR as the central hospital and shared data. Several practices launched electronic patient portals with secure communication functionality. Despite these positive experiences with EHRs and health IT in general, some negative perceptions also were noted. Many providers cited

various problems trying to access HIXNY or get it to function properly. One overarching theme was that the database was very cumbersome and the information often too difficult to retrieve, due either to problems with connectivity or the presentation of the information.

Patient awareness of PCMH. From the perspective of patients and caregivers, practices' transformations into PCMHs were observed at many levels. Although most focus group participants had not heard of the term "patient-centered medical home," many consistently observed the emergence of PCMH features, such as increased use of EHRs at their providers' offices and increased efficiency. A few participants in the Glens Falls focus groups had heard of the ADK Medical Home initiative because they had read about it in Hudson Headwaters newsletters or seen it featured on its Web site. Most participants in Glens Falls had not heard of it, however, and none of the participants in Plattsburgh had. When the concept of a medical home was explained to them, most liked the idea, although some were concerned that it could limit their choice of providers. Many, particularly in Glens Falls, felt that the care they received fit the description of a medical home.

Patient awareness of practice changes. The primary change that focus group participants observed over the past few years was the computerization of medical records. Participants felt the EHRs improved information exchange between their PCPs and specialists, and that it was beneficial to have all their medical information available online in case they had to go to the hospital for an emergency or needed to seek medical care while traveling. Some also commented that they got results from lab work much faster than in the past.

Many participants noted shorter wait times and more efficient practices. A few participants noted that they felt that the quality of care had improved—that providers took more time to discuss health issues, took a more holistic approach, followed up, and were friendlier and more responsive.

Less positive changes noted by a few participants were an increase in the use of hospitalists in the hospital and an increasing scarcity of primary care physicians. It was more difficult to find a primary care physician, and participants were more likely to see a nurse practitioner (NP) or physician assistant (PA). Participants in a dually eligible group noted that, with the increase in drug abuse in the area, it had become harder to get the pain medication needed.

4.2.2 Technical Assistance

To the extent that they participated, practices were positive about the various types of technical support associated with their participation in the ADK Demonstration. The annual demonstration-wide summit was considered valuable, as were various webinars sponsored throughout the evaluation period, some assistance from their local Pods, and technical support from their EHR vendors.

Practices largely considered the various data on their patients, shared with them as part of the demonstration, to be a useful form of technical assistance. A few practices used utilization reports, such as the Medicare beneficiary utilization files provided through the MAPCP Demonstration Web portal, to prioritize their high-risk patients, but other practices did not or were unaware of these reports. Most practices complained that the external utilization and quality

data were too old or out of date by the time they received them. In the words of one practice member, “We don’t have enough timely data yet; we need a lot more to really make some changes. Treo data is too old. We’re moving away from that.”

4.2.3 Payment Supports

The ADK Demonstration practices universally credited payment support as the key factor enabling them to transition to the medical home model, particularly for purchasing new EHRs and establishing enhanced access and care coordination. Although there was widespread support for the payments, some providers did not think the portion of the \$7 PMPM payments they received (after the Pod and AHI received their allotted portions) was sufficient to support all the transformation investments made by practices since the beginning of the ADK Demonstration.

Perceptions of the ADK Demonstration P4P criteria also were mixed. Acknowledging that the incentives were “enough to get people’s attention,” providers noted that several elements important in meeting the criteria actually fell outside their direct control, such as readmissions. Another practitioner commented that the incentives focused on the wrong things: “We don’t really measure utilization, [such as] how many MRIs ordered for back pain, test ordering, how many times you see a patient for the same diagnosis.” One practice decided that incentives were best spent on practice “citizenship,” such as attending staff meetings, allowing providers in the team to cross-cover for patient appointments, and mentoring for NPs, because quality data were unavailable to providers at the individual level. One provider said that measures related to patient satisfaction were inappropriate for incentives, and that he did not want to be encouraged to spend his time “chasing patient satisfaction scores.”

4.2.4 Practices’ Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level of adoption, and one representing a high level of adoption. Survey findings presented in **Table 4-6** and **Table 4-7** present the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted.

The Overall Practice Transformation Index reported in **Table 4-6** is the percentage of activities adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities that New York providers reported engaging in was comparable to the average percentage across the eight MAPCP Demonstration states, both overall and within five of the six PCMH domains. For one domain (health IT), however, the proportion of New York providers that reported engaging at a high level was significantly higher (99%) than the eight-state MAPCP Demonstration average (93%).

Table 4-6
New York: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in New York (N = 82 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	76	72
Practice Transformation Index by Domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	80	76
Care management (without involvement of other providers)	82	78
Care coordination (involving other health care providers)	71	68
Patient engagement and self-management	61	57
Quality improvement	62	76
Health IT	99*	93

NOTE: ¹Unweighted average of the state averages for the eight MAPCP Demonstration states.

Health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 4-7 presents the percentage of providers in New York who reported high-level adoption of particular PCMH activities compared with the MAPCP Demonstration eight-state average. Providers in New York were similar to the eight-state average for 16 of the 23 PCMH activities. They performed better than the eight-state average for six activities:

- After-hours access to practice staff by phone and through evening or weekend office hours (84% compared with 69%);
- Monitoring patients' care during hospital stays (87% compared with 74%);
- Use of clinical decision support tools to identify patients needing preventive services and reminding patients to schedule these (87% compared with 78%);
- Tracking and follow-up with patients for important referrals (86% compared with 75%);
- Incorporating patients' values and preferences into care planning (59% compared with 51%); and
- Use of EHRs for basic functions, clinical decision support, and quality measures (99% compared with 93%).

Meanwhile, a lower share of New York providers reported following up with patients seen in the ER or hospital (69% compared with 80%). These results are discussed in greater detail and contextualized in subsequent sections of this chapter.

Table 4-7
New York: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in New York (N = 82 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to Care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	88	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	80	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in person during some evenings or weekends. The practice actively participates in coordinating ER care and follows up with patients after visits to the ER.	84*	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	79	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays and is involved as needed.	87*	74
Care Management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	60	59

(continued)

Table 4-7 (continued)
New York: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in New York (N = 82 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	88	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	99	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers and provides educational resources and ongoing support to assist with self-management.	89	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	87*	78
Tracking and follow-up with patients about test results... Is consistently done.	89	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	86*	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	54	50
Patient referral information to specialists, hospitals, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	92	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	68	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	69*	80

(continued)

Table 4-7 (continued)
New York: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in New York (N = 82 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Patient Engagement and Self-Management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	72	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	59*	51
Involving patients and caregivers in health care decision making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, or teach-back techniques.	67	67
Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	54	57
Quality Improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	82	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns and is incorporated into practice improvements.	82	79
Health IT (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/ alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	99*	93

NOTE: ¹Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

4.2.5 Discussion of Practice Transformation

To transform into high-level PCMHs, practices participating in the ADK Demonstration implemented various approaches across the three Pod regions, with a focus on enhancing team-based care and identifying high-risk patients in need of care management. Practices hired new staff for care coordination and restructured responsibilities to make more effective use of staff capabilities. At the end of the evaluation period, patients, particularly high-risk ones, were assigned an individual PCP and an entire care team that closely coordinated all their care throughout the delivery system. New York's focus on care coordination and team-based care is reflected in the care coordination domain of the practice transformation survey, in which ADK Demonstration practices had a significantly higher score compared with the eight-state average.

Another key component of New York practices' transformation efforts centered on improving care transitions for their patients leaving the hospital and going back to the community. Although improvements were made, New York did lag behind practices in other MAPCP states, as reported in the practice transformation survey, in following up with patients discharged from the hospital or ER.

Health IT played an increasingly important role in practices during the evaluation period. All practices were required to implement EHRs early on during the ADK Demonstration to receive Level II NCQA PCMH recognition. Despite some frustrations learning to use EHR data, particularly for tracking quality improvement, a large majority of practices continued to work with their EHR vendors throughout the evaluation period to better customize their system's capabilities.

Although providers and other stakeholders generally felt positive about the progress of practice transformation, a few providers did not feel that their input was consistently being heard or valued by the ADK Demonstration leadership team in terms of the resources (e.g., staffing, time to develop new work flows, reimbursement to do care management) needed to achieve optimal practice transformation throughout the region. Another concern was about the burden of meeting many requirements (e.g., Meaningful Use requirements, ACO reporting requirements) for various state and federal initiatives being implemented simultaneously while still having adequate time for direct patient care. Finally, practices, and the region as a whole, needed additional resources to support behavioral health care given the severe mental health workforce shortages in the traditionally underserved Adirondack region of the state.

4.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 4.3.1*); impacts on utilization of services and clinical quality (*Section 4.3.2*); and a synthesis of these findings (*Section 4.3.3*).

4.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

The care management process across all three Pods broadened from an initial focus on treating symptoms associated with specific diseases (e.g., diabetes, heart disease) to treating all

health care needs for the whole patient. Demonstration leaders felt that for quality of care improvements to be truly person centered, providers and their care teams needed to focus on all their patients' needs for their well-being, including medical, social, and behavioral. Although care managers still worked closely with providers to identify patients with specific conditions, their care approach was not disease specific. Care management plans were developed to address all issues facing the patient, including those outside the traditional medical care domain (e.g., social needs, behavioral health needs, transportation). During the course of the evaluation period, practitioners received training and were encouraged by demonstration leaders to connect better to their patients' needs through improved communication and care coordination across their patients' spectrum of providers.

Care management teams, typically staffed by advanced care nurses, were a critical component of efforts to improve the quality of care among participating practices in New York. Care managers across all Pods provided intense care support and education to patients and assisted in coordinating care across multiple providers and settings. Care managers played these same roles in all of the pods, but the ways in which they were integrated into the practices varied. In Pod 3, practices began by assigning a single care manager to multiple practice locations but later moved more to a staff model, with a dedicated care manager embedded within each practice site. According to interviewees from the Pod, physicians all were very supportive of this change and felt that having a dedicated care manager improved their ability to identify patients needing care management. Care managers based in Pod 1 covered several practice locations because of the more limited resources among practices in the North Country region, but providers believed that they became more effective by using the services care managers provided. Pod 2 practices both incorporated embedded care managers within each practice and staffed a network-wide team of nurse educators and community support staff (e.g., social workers) who worked closely with providers in all practices.

Two important functions for care managers across all Pods during the evaluation period were monitoring patient quality of care data and ensuring that practices met targets for key quality of care metrics. To do so, providers and other practice staff worked closely with care managers to reach out to patients and coordinate receipt of any needed tests or treatments. Practices often implemented condition-specific projects to improve metrics; for example, Pod 3 reported during the 2014 site visit that they recently started a project for patients with chronic obstructive pulmonary disease (COPD) and developed care plans according to guideline-based care for the condition.

Another initiative undertaken by all ADK Demonstration practices was fulfilling requirements to maintain CMS Stage 2 EHR meaningful use recognition. Although this requirement was not related directly to participation in the ADK Demonstration, all providers felt strongly that these meaningful use requirements improved their performance on quality of care measures and ultimately improved their patients' health outcomes. Some Pod and practice respondents noted that encouraging patient use of portals to meet meaningful use requirements may be a challenge in the future because of varying degrees of computer literacy among patients.

The availability of quality of care data also promoted greater use of good preventive care. Providers in Pods 1 and 2 discussed how nurses and office staff focused significantly on preventive health issues before office appointments. One Pod 1 provider described a process in

which office staff worked closely with nurses on scheduling and reminders for patients needing tests or educational resources before their appointments. These additional steps aimed at improving patient self-management helped providers to be better prepared to care for the patient during the visit.

Lastly, medication safety was a central strategy for improving overall patient safety within the ADK Demonstration. Through their EHR systems, providers easily found medication and formulary information and generated alerts of potential drug interactions and medication adherence details for patients. Practices across all three Pods expressed strong support for the clinical pharmacist to be embedded within their practice care teams in the future to provide services such as reviewing patients' charts for medication reconciliation and consulting patients on medication use and adherence. By Year Three, all practices had access to a clinical pharmacist through the Pod or through a local hospital system if the practice was affiliated with a hospital. Pod 3 providers, in particular, were enthusiastically supportive of the clinical pharmacist, who provided medication education or reconciliation for their patients during hospital stays and rotated to see patients in the office or outpatient setting.

Medicare beneficiaries who participated in the CAHPS PCMH survey were asked whether their provider knew their medical history. Approximately 96 percent of Medicare beneficiaries reported that their provider "usually" or "always" seemed to know information about their medical history. Focus group findings supported this point: Nearly all participants felt that their PCPs knew them as people and remembered the specifics of their health care needs. One participant said, "[The provider] pays attention to the little things and remembers." A few noted that they felt that EHRs had contributed to the PCP's ability to remember the specifics of their medical history, because the PCP can easily look up their medical history to see past test results or medications they have been taking.

With respect to how Medicare and Medicaid beneficiaries felt treated by their providers, 98 percent of respondents to the CAHPS PCMH survey said that providers "usually" or "always" showed respect for what their patients had to say. Similarly, 97 percent of respondents said that their providers "usually" or "always" listened carefully to them. These results were echoed by the focus group participants, who generally felt that their PCPs treated them with respect and kindness. Comments included that they "cared" and were "compassionate," "encouraging," and "respectful." Most had had positive experiences not only with their own PCP but also with other providers they had seen at the same practice, although a few mentioned that they had not liked another provider they had seen, or that they had changed to their current PCP because they had not been happy with their previous PCP. Nearly all participants thought that their PCPs were very good at listening to them and taking the time to try to understand their concerns.

4.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

The ADK Demonstration was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the ADK Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 4-8** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and on one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 4-9** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population include breast cancer screening, cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the MAPCP Demonstration in the likelihood of receiving the service in either Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared with the CG. MAPCP Demonstration beneficiaries were expected to have positive values for all indicators, except the “none” indicator in diabetes care.

Although 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in New York, the process of care indicators were measured at the annual level, so only the first 12 quarters of data for an individual were used.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to ADK Demonstration practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, COPD or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 4-10** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the ADK Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If the ADK Demonstration was associated with improvements in the quality of and access to ambulatory

care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures included all 14 quarters of data.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in *Section 4.3.3*.

Table 4-8
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 4,692)	1.47	[-0.27, 3.22]	-0.44	[-1.90, 1.01]
Year Two (N = 3,723)	1.84	[-0.29, 3.97]	0.72	[-1.28, 2.73]
Year Three (N = 2,686)	0.54	[-1.51, 2.58]	-0.31	[-3.70, 3.08]
Overall (N = 5,224)	1.37	[-0.39, 3.13]	-0.02	[-1.72, 1.68]
Retinal eye examination				
Year One (N = 4,692)	0.79	[-0.84, 2.42]	0.78	[-2.64, 4.19]
Year Two (N = 3,723)	0.01	[-2.91, 2.92]	8.82*	[6.10, 11.54]
Year Three (N = 2,686)	0.53	[-2.58, 3.65]	0.30	[-3.76, 4.35]
Overall (N = 5,224)	0.47	[-1.27, 2.20]	3.36*	[1.16, 5.56]
LDL-C screening				
Year One (N = 4,692)	0.64	[-1.47, 2.76]	1.60	[-1.67, 4.87]
Year Two (N = 3,723)	-0.49	[-2.52, 1.54]	3.27*	[0.16, 6.38]
Year Three (N = 2,686)	0.42	[-2.72, 3.56]	1.35	[-4.78, 7.48]
Overall (N = 5,224)	0.21	[-1.85, 2.27]	2.10	[-1.14, 5.35]
Medical attention for nephropathy				
Year One (N = 4,692)	-1.28	[-5.52, 2.97]	1.14	[-3.06, 5.35]
Year Two (N = 3,723)	-5.08	[-10.41, 0.25]	4.94	[-1.27, 11.15]
Year Three (N = 2,686)	-5.22	[-10.56, 0.11]	-1.05	[-7.53, 5.43]
Overall (N = 5,224)	-3.51	[-7.86, 0.84]	1.89	[-2.23, 6.00]
Received all 4 diabetes tests				
Year One (N = 4,692)	0.82	[-2.56, 4.21]	0.15	[-3.44, 3.74]
Year Two (N = 3,723)	-3.02	[-7.17, 1.14]	6.78*	[2.07, 11.49]
Year Three (N = 2,686)	-2.63	[-6.84, 1.58]	-1.62	[-7.23, 3.98]
Overall (N = 5,224)	-1.30	[-4.61, 2.01]	1.95	[-1.29, 5.18]

(continued)

Table 4-8 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received none of the 4 diabetes tests				
Year One (N = 4,692)	-0.38	[-1.04, 0.27]	0.25	[-0.41, 0.91]
Year Two (N = 3,723)	-0.25	[-1.21, 0.71]	-0.48	[-1.77, 0.81]
Year Three (N = 2,686)	-0.08	[-0.95, 0.78]	0.02	[-1.22, 1.26]
Overall (N = 5,224)	-0.27	[-0.97, 0.43]	-0.05	[-0.85, 0.74]
Total lipid panel				
Year One (N = 7,330)	0.20	[-1.95, 2.34]	1.06	[-1.26, 3.37]
Year Two (N = 6,021)	0.14	[-2.25, 2.54]	-1.02	[-3.96, 1.92]
Year Three (N = 4,556)	-0.13	[-3.30, 3.04]	0.11	[-4.05, 4.26]
Overall (N = 8,839)	0.09	[-2.09, 2.28]	0.12	[-2.41, 2.65]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.

ADK = Adirondack Medical Home; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found no evidence that the ADK Demonstration impacted the process of care measures, with the exception of retinal eye examinations. Specifically, **Table 4-8** shows that:

- The *overall* likelihood of receiving a **retinal eye examination** increased among Medicare ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, low-density lipoprotein cholesterol (LDL-C) screening, medical attention for nephropathy, or total lipid panels.

Table 4-9
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing										
Year One	N/A	N/A	N/A	N/A	N/A	896	-1.28	[-3.70, 1.13]	4.21	[-0.45, 8.87]
Year Two	N/A	N/A	N/A	N/A	N/A	581	0.42	[-2.12, 2.97]	-0.03	[-5.63, 5.57]
Year Three	N/A	N/A	N/A	N/A	N/A	370	2.85	[-2.56, 8.26]	-3.45	[-10.61, 3.71]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	0.08	[-1.48, 1.65]	1.34	[-2.05, 4.74]
Retinal eye examination										
Year One	N/A	N/A	N/A	N/A	N/A	896	-9.99*	[-19.37, -0.61]	-1.10	[-8.06, 5.86]
Year Two	N/A	N/A	N/A	N/A	N/A	581	-11.51	[-24.46, 1.44]	-8.05	[-17.42, 1.31]
Year Three	N/A	N/A	N/A	N/A	N/A	370	-14.48	[-32.39, 3.43]	-14.03	[-33.30, 5.24]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	-11.37	[-23.00, 0.27]	-5.88	[-14.23, 2.47]
LDL-C screening										
Year One	N/A	N/A	N/A	N/A	N/A	896	0.45	[-5.69, 6.58]	3.53	[-2.74, 9.79]
Year Two	N/A	N/A	N/A	N/A	N/A	581	5.49	[-2.01, 12.99]	3.35	[-2.74, 9.44]
Year Three	N/A	N/A	N/A	N/A	N/A	370	4.98	[-1.64, 11.61]	2.83	[-6.73, 12.39]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	2.94	[-2.79, 8.68]	3.33	[-2.64, 9.31]

(continued)

Table 4-9 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical attention for nephropathy										
Year One	N/A	N/A	N/A	N/A	N/A	896	0.40	[-1.31, 2.10]	0.80	[-0.80, 2.40]
Year Two	N/A	N/A	N/A	N/A	N/A	581	-0.53	[-2.41, 1.36]	1.74	[-1.47, 4.94]
Year Three	N/A	N/A	N/A	N/A	N/A	370	1.08	[-2.73, 4.90]	-0.20	[-2.11, 1.71]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	0.24	[-1.39, 1.88]	0.90	[-0.59, 2.38]
Received all 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	896	-2.07	[-9.96, 5.82]	4.40	[-2.47, 11.27]
Year Two	N/A	N/A	N/A	N/A	N/A	581	-4.22	[-12.22, 3.78]	4.08	[-3.21, 11.37]
Year Three	N/A	N/A	N/A	N/A	N/A	370	-9.90	[-21.70, 1.90]	-7.33	[-22.41, 7.74]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	-4.31	[-11.77, 3.14]	1.95	[-4.04, 7.94]
Received none of the 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	896	0.59	[-1.31, 2.50]	-0.09	[-1.01, 0.82]
Year Two	N/A	N/A	N/A	N/A	N/A	581	0.05	[-0.60, 0.71]	-0.49	[-1.64, 0.66]
Year Three	N/A	N/A	N/A	N/A	N/A	370	-0.88	[-3.74, 1.99]	0.34	[-0.32, 1.00]
Overall	N/A	N/A	N/A	N/A	N/A	1,022	0.13	[-0.53, 0.78]	-0.13	[-0.64, 0.38]
Breast cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	1,921	3.39	[-0.31, 7.09]	0.46	[-2.49, 3.41]
Year Two	N/A	N/A	N/A	N/A	N/A	1,320	0.96	[-3.04, 4.96]	-1.61	[-5.00, 1.78]
Year Three	N/A	N/A	N/A	N/A	N/A	866	5.39	[-0.81, 11.60]	1.28	[-2.26, 4.83]
Overall	N/A	N/A	N/A	N/A	N/A	2,133	3.03	[-0.28, 6.34]	-0.03	[-2.51, 2.45]

(continued)

Table 4-9 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Cervical cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	4,841	4.49*	[1.64, 7.34]	5.75*	[2.81, 8.68]
Year Two	N/A	N/A	N/A	N/A	N/A	3,224	4.73*	[1.93, 7.52]	3.55*	[0.36, 6.74]
Year Three	N/A	N/A	N/A	N/A	N/A	1,854	6.01*	[3.15, 8.86]	5.66*	[0.35, 10.97]
Overall	N/A	N/A	N/A	N/A	N/A	5,297	4.85*	[2.67, 7.03]	5.02*	[2.00, 8.03]
Appropriate use of antidepressant medication management: 12 weeks										
Year One	N/A	N/A	N/A	N/A	N/A	1,370	-5.11	[-12.41, 2.19]	1.07	[-4.83, 6.97]
Year Two	N/A	N/A	N/A	N/A	N/A	843	-7.94*	[-14.26, -1.61]	-8.29*	[-14.34, -2.23]
Year Three	N/A	N/A	N/A	N/A	N/A	517	1.37	[-7.30, 10.05]	9.37*	[2.15, 16.58]
Overall	N/A	N/A	N/A	N/A	N/A	2,140	-4.75	[-11.26, 1.75]	-0.25	[-4.33, 3.83]
Appropriate use of antidepressant medication management: 6 months										
Year One	N/A	N/A	N/A	N/A	N/A	1,370	1.52	[-1.54, 4.59]	-1.53	[-5.69, 2.64]
Year Two	N/A	N/A	N/A	N/A	N/A	843	-1.09	[-4.84, 2.66]	-6.55*	[-10.69, -2.41]
Year Three	N/A	N/A	N/A	N/A	N/A	517	0.56	[-3.32, 4.44]	1.18	[-2.43, 4.78]
Overall	N/A	N/A	N/A	N/A	N/A	2,140	0.53	[-2.48, 3.54]	-2.57	[-5.79, 0.66]

(continued)

Table 4-9 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Appropriate use of asthma medications										
Year One	413	-5.01	[-29.02, 19.01]	-10.26	[-22.79, 2.28]	546	1.95	[-4.34, 8.23]	3.05	[-1.86, 7.97]
Year Two	352	-7.49	[-43.76, 28.79]	-0.39	[-12.65, 11.88]	372	1.70	[-7.62, 11.03]	-2.43	[-13.23, 8.36]
Year Three	151	-5.59	[-33.16, 21.98]	6.70	[-8.41, 21.81]	208	4.20	[-5.68, 14.08]	-5.37	[-19.94, 9.19]
Overall	599	-6.06	[-35.08, 22.97]	-3.67	[-13.53, 6.19]	734	2.28	[-4.02, 8.58]	-0.32	[-5.79, 5.16]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.

ADK = Adirondack Medical Home; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found no evidence that the ADK Demonstration impacted process of care measures, with the exception of cervical cancer screenings. Among Medicaid children, we find no evidence of an impact on the appropriate use of asthma medications. Specifically, **Table 4-9** shows that:

- The *overall* likelihood of **cervical cancer screening** increased among adult Medicaid ADK Demonstration beneficiaries compared with adult beneficiaries assigned to either PCMH or non-PCMH comparison practices.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, retinal eye examinations, medical attention for nephropathy, breast cancer screening, appropriate antidepressant medication management, or the appropriate use of asthma medications.

Table 4-10
New York: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 21,462)	0.47	[-0.22, 1.16]	0.72	[-0.10, 1.54]
Year Two (N = 22,744)	0.07	[-0.72, 0.85]	-0.85	[-2.23, 0.52]
Year Three (N = 23,002)	-0.42	[-1.59, 0.74]	-0.11	[-1.61, 1.39]
Overall (N = 29,093)	0.09	[-0.58, 0.77]	-0.02	[-0.88, 0.85]
PQI admissions—overall ²				
Year One (N = 21,462)	-0.36	[-1.63, 0.91]	-1.29	[-2.93, 0.35]
Year Two (N = 22,744)	0.23	[-1.26, 1.73]	0.07	[-1.71, 1.84]
Year Three (N = 23,002)	-1.02	[-2.48, 0.45]	-0.40	[-2.30, 1.51]
Overall (N = 29,093)	-0.72	[-1.80, 0.36]	-0.65	[-2.00, 0.70]
PQI admissions—acute ³				
Year One (N = 21,462)	-0.38	[-1.20, 0.44]	-0.76	[-1.68, 0.16]
Year Two (N = 22,744)	0.04	[-0.76, 0.83]	-1.01	[-2.14, 0.13]
Year Three (N = 23,002)	-0.51	[-1.42, 0.40]	-0.56	[-1.42, 0.30]
Overall (N = 29,093)	-0.42	[-1.10, 0.26]	-0.73	[-1.47, 0.02]
PQI admissions—chronic ⁴				
Year One (N = 21,462)	-0.01	[-0.88, 0.86]	-0.39	[-1.48, 0.70]
Year Two (N = 22,744)	0.18	[-0.96, 1.31]	0.95	[-0.18, 2.09]
Year Three (N = 23,002)	-0.44	[-1.38, 0.50]	0.25	[-1.25, 1.75]
Overall (N = 29,093)	-0.29	[-0.98, 0.41]	0.15	[-0.79, 1.08]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

ADK = Adirondack Medical Home; CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare ADK Demonstration beneficiaries, there were no statistically significant *overall* differences observed in the rates of avoidable catastrophic events or PQI inpatient admissions (overall, acute, or chronic).

4.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

ADK Demonstration practices felt that the care management teams created as part of their practice transformation efforts during the evaluation period were critical to improving quality of care for all their patients. Care managers regularly monitored patient quality of care data and ensured that practices met targets for key quality of care metrics throughout the evaluation period. Despite these efforts, there generally were no statistically significant findings for Medicare beneficiaries when comparing ADK Demonstration practices to both PCMH and non-PCMH CGs. For Medicaid beneficiaries, there were a few significant differences in the process of care measures for cervical cancer screenings but no evidence to suggest widespread improvements in quality of care. The positive finding on cervical cancer screening was consistent with findings from our interviews with providers and other stakeholders that there was greater emphasis on preventive care. Because Pod 2 is a network of FQHCs and FQHCs report on quality metrics—including cervical cancer screening—to the federal government, we explored if the positive findings were driven primarily by Pod 2. Although Pod 2 had higher screening rates than Pod 3, Pods 1 and Pod 2 had generally similar rates. What appeared to drive the significantly higher rates relative to the CG was the drop over time in the CGs' cervical cancer screening rates (see *Appendix F* for the yearly mean cervical cancer screening rates for the control groups).

Several reasons may explain the disconnect between the practices' reports of systematic use of quality improvement activities and the results from the claims analyses. First, some practices noted that changing patients' patterns of care takes time—and changing health takes even longer. Although practices improved their efforts to conduct outreach to and bring in patients in need of evidence-based or preventive care, those efforts to do not always correlate with immediate improvements in population-based quality metrics. Further, the evaluation period was relatively short. Although we would expect more immediate improvements in the annual process of care measures, there may be a need for a more than 3-year evaluation period to demonstrate an association between participation in the MAPCP Demonstration and significant changes in patient outcomes, as proxied by preventable hospitalizations for chronic conditions for example.

4.4 Access to Care and Coordination of Care

This section, based on both site visit findings and analysis of Medicare and Medicaid data, describes the changes practices made aimed at improving access to care and the coordination of care (*Section 4.4.1*), impacts on access to care and coordination of care (*Section 4.4.2*), and a synthesis of these findings (*Section 4.4.3*).

4.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

We learned from our site visit interviews that a variety of new protocols and processes were established to enhance patient access to care in the ADK Demonstration practices during the evaluation period. Practices across all Pods maintained protocols to provide blocked-out time for same-day appointments, and some also developed algorithms to determine the optimal number of appointment times to leave open. However, only 57 percent of CAHPS survey respondents said they were able to obtain a same-day appointment from their primary care practice when they needed care right away. The experience of focus group participants aligned more with expectations from the implemented protocol than survey responses. In particular, focus group participants noted that staff at the front desk were good at understanding when a problem was serious and would do their best to work them in. A few said that if they had an urgent need, they would call their PCP at home and he or she would work them in. Many noted, however, that they typically could not see their own PCP on short notice—usually they could only get an appointment with another provider, often a PA. For a few patients, this was a perceived barrier in access to care given their strong preference to see their PCP.

For routine care, 96 percent of survey respondents were usually or always able to make an appointment for a check-up or routine care as soon as they needed. Focus group participants generally said that they had to wait 2 to 3 months to schedule an appointment. Most did not find this to be a problem, however: They often simply scheduled their next appointment at the end of their previous appointment.

The provider survey results, as shown in **Table 4-7**, indicate that 84 percent of New York providers reported offering after-hours access to practice staff for urgent care by phone, offering some evening or weekend office hours. In contrast, on average only 69 percent of providers across all MAPCP Demonstration states reported engaging in these activities. Practices in Pods 2 and 3 offered extended access through an after-hours telephone triage service allowing patients to seek advice from a qualified nurse. Providers in several practices rotated after-hours on-call duty and provided limited weekend hours (e.g., half-day Saturdays). Accordingly, 82 percent of CAHPS survey respondents said their primary care practice gave them information about what to do if they needed care during evenings, weekends, or holidays. However, 41 percent of these Medicare beneficiaries responded to the CAHPS PCMH survey that they could “never” get the care they needed from their provider’s office during evenings, weekends, or holidays.

With a few exceptions, the percentage of ADK Demonstration providers who reported engaging in care management and care coordination activities in the provider survey was comparable to the eight-state MAPCP Demonstration average. In Glens Falls, several focus group patients in the Medicaid and dually eligible groups said that they had a care manager affiliated with their PCP, and all found them very helpful. In Plattsburgh, no participants reported having a care manager through their PCP, although one caregiver commented that the PCP had referred her to a local government agency, the Office of Aging, that had provided a lot of help in filling out forms and identifying eligible support services. She and the other caregivers

in the group agreed that it would be extremely helpful if there were a service like that available through their PCP that could help them find resources that they might not know about.

A lower share of New York providers routinely follow up with patients seen in the ER or hospital after notification from the ER or hospital (69% of New York providers, compared with 80% of providers across the eight MAPCP Demonstration states). During the focus groups, caregivers in Plattsburgh commented that it is their responsibility to make a follow-up appointment with the PCP after discharge from the hospital—no one does it for them.

Despite less than ideal follow-up by their PCPs, focus group participants generally felt that the transfer of information between their PCPs and hospitals was good. Many commented that it has improved significantly in the past couple of years with the advent of EHRs—in particular, that when you went to a hospital, the staff could access all the information about your conditions and medications that they needed to know. Participants also generally felt that the records from the hospital made it back to their PCP, although some said that this had always been the case—their PCPs got the records even before they were electronic.

Focus group participants also said that coordination was generally good between their PCPs and specialists. Many participants commented that their PCPs communicated with their specialists and knew what was going on with them. Nearly all said that the specialists could access their health information on the computer, and the PCP received records from the specialists. Participants also said that their PCPs could see what specialists they had seen and review the information with them. Several commented that this ease of access was new: “Before, [my PCP] used to have to chase after the records; now, they’re there.” Some commented that results from blood work get to the PCP much faster than in the past. A few participants, however, said that the records did not get shared with their PCP automatically, and the PCP had to call to get them, or they had to follow up to make sure they had been sent. Participants in a caregiver group said that although the PCP received all the records, they still felt like they were the ones who had to “steer the ship” to coordinate care for their loved one.

Participants said that if they needed to see a new specialist, their PCP would often refer them to someone, and the PCP’s office often would make the appointment for them. As one said, “If you’re referred for any further testing or specialists, the doctor has the receptionist do it immediately before you even leave the office.” One commented that she thought she was able to get appointments with specialists more quickly through the PCP’s office than if she did it on her own. A few participants in Medicaid and dually eligible groups said that they had had difficulty with referrals from their PCP, however, because many specialists do not accept their insurance. “Then you have to call a bunch of them, find out which one takes your insurance, and then call your doctor back and tell them that they need to write a new referral for this doctor because they take your insurance.” After the initial referral to a specialist, most participants made follow-up appointments with the specialists on their own, without going through the PCP.

It should be noted that a higher share of New York providers reported engaging in the following activities at a high level:

- Assigning patients to specific care teams for improved patient-clinician continuity (87% of New York providers, compared with an average of 74% across the eight MAPCP Demonstration states).
- Scheduling office visits for the specific purpose to provide preventive screenings (87% of New York providers, compared with an average of 78% across the eight MAPCP Demonstration states).
- Systematically assessing patient and family values and preferences (59% of New York providers, compared with an average of 51% across the eight MAPCP Demonstration states).

With regard to care coordination with specialists, results from the patient experience survey indicate that 86 percent of survey respondents felt that after receiving care from a specialist, their PCP was informed about the care received from the specialist. This finding of care coordination was consistent with what focus group participants said about their primary care doctors routinely following up with them after being referred to specialists. Overall, participants were pleased with the resulting level of coordination between their PCPs and specialists.

Across all Pods, care managers further integrated community resources and nontraditional care into their activities as the end of the demonstration neared. Pods 2 and 3 sought to reach out to and coordinate with more specialized resources, such as home health services and local behavioral health care providers, both severely lacking in the region despite a high demand for these services.

During the 2013 site visit, many practices noted that they had space constraints, with no additional room to add providers or embedded care managers. In 2014, Pods and some practices underwent expansion to increase their access and care coordination capacity. For example, Pod 2 built a new health center to add providers and more space across practices to embed care managers. Practices from all Pods hired mid-level providers in 2014 to expand access during the demonstration and provide team-based care to a patient panel. Demonstration and Pod leaders felt that the expansion of Pod-level care management staff across the demonstration—and increased use of this service by providers—were associated with improved patient access to care and other resources. Pod staff noted that providers requested more time from care managers, who typically split their time across practices.

The greater availability of data for care managers and providers through Pod-level activities increased capacity for care coordination. Pod 2 established a large data analytics team over the past 3 years; in Year Three, the Pod heavily invested in an EHR component able to generate real-time claims data feedback for providers. Pod 3 reported transitioning from heavy reliance on providers' care management referrals to using data pulled from EHRs to identify patients needing care management.

Although New York spent considerable resources to improve access to care and care coordination during the evaluation period, there did not appear to be a coordinated approach demonstration-wide to measure access to care, or any expectation that practices themselves would measure access to care. Similarly, there also did not appear to be a process to assess or

measure care coordination, although the impact may be indirectly inferred from available data on adherence to quality and utilization measures.

4.4.2 Impacts on Access to Care and Coordination of Care

The ADK Demonstration is expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the ADK Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 4-11** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care (COC) Index.
- **Table 4-12** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

ADK Demonstration beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under the ADK Demonstration. In Medicare, these measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. Further, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

Because 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures included all 14 quarters of data.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from 0 to 1. ADK Demonstration beneficiaries were expected to have higher values on the COC Index. Due to limitations in the Medicaid claims data, the continuity of care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC Index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with the ADK Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in either Year One, Year Two, Year Three, or all years. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with the ADK Demonstration in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Although 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in New York, primary care visits as a percentage of total ambulatory care visits and the COC Index were measured at the annual level, so only the first 12 quarters of data for an individual were used.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 4.4.3**.

Table 4-11
New York: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 21,462)	-8.07	[-64.09, 47.94]	1.54	[-88.34, 91.42]
Year Two (N = 22,744)	3.18	[-65.08, 71.44]	17.63	[-82.80, 118.05]
Year Three (N = 23,002)	-26.46	[-114.46, 61.53]	-28.11	[-121.47, 65.26]
Overall (N = 29,093)	-14.59	[-81.26, 52.07]	-4.17	[-94.44, 86.11]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 21,462)	-23.00	[-55.68, 9.69]	-13.21	[-48.84, 22.42]
Year Two (N = 22,744)	-14.74	[-60.62, 31.14]	-14.96	[-64.61, 34.68]
Year Three (N = 23,002)	-7.77	[-59.01, 43.47]	-4.92	[-63.48, 53.64]
Overall (N = 29,093)	-20.69	[-60.48, 19.10]	-19.31	[-63.95, 25.32]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 21,462)	14.68*	[4.26, 25.09]	12.88	[-0.03, 25.79]
Year Two (N = 22,744)	10.30	[-1.50, 22.10]	8.82	[-2.11, 19.76]
Year Three (N = 23,002)	8.18	[-4.89, 21.25]	11.46	[-0.53, 23.45]
Overall (N = 29,093)	10.29	[-0.11, 20.68]	9.40	[-0.16, 18.95]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 18,271)				
1st quintile	1.28	[-1.11, 3.67]	-0.40	[-4.53, 3.74]
5th quintile	-0.68	[-1.94, 0.58]	0.21	[-1.99, 2.42]
Year Two (N = 14,718)				
1st quintile	1.76	[-1.71, 5.22]	0.43	[-4.69, 5.54]
5th quintile	-0.84	[-2.52, 0.84]	-0.21	[-2.72, 2.31]
Year Three (N = 11,391)				
1st quintile	3.65	[-1.39, 8.69]	3.39	[-1.49, 8.28]
5th quintile	-1.54	[-3.77, 0.68]	-1.52	[-3.79, 0.74]
Overall (N = 20,983)				
1st quintile	2.04	[-1.15, 5.24]	0.85	[-3.62, 5.31]
5th quintile	-0.95	[-2.49, 0.58]	-0.37	[-2.60, 1.86]

(continued)

Table 4-11 (continued)
**New York: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:**
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 3,094)	-5.79	[-42.42, 30.84]	-22.26	[-74.59, 30.07]
Year Two (N = 3,107)	-7.66	[-48.48, 33.16]	12.62	[-56.72, 81.96]
Year Three (N = 2,989)	1.19	[-60.17, 62.56]	-15.65	[-96.44, 65.14]
Overall (N = 7,568)	-4.71	[-43.53, 34.11]	-14.41	[-76.50, 47.67]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 3,730)	-13.25	[-33.46, 6.96]	-16.25	[-39.22, 6.72]
Year Two (N = 3,741)	-24.23*	[-46.78, -1.67]	-4.60	[-33.89, 24.69]
Year Three (N = 3,627)	-15.52	[-37.00, 5.96]	-14.83	[-38.00, 8.34]
Overall (N = 8,941)	-14.22	[-29.13, 0.70]	-11.34	[-29.66, 6.99]
COC Index (higher quintile = better continuity of care)				
Year One (N = 23,370)				
1st quintile	3.28*	[1.68, 4.88]	1.02	[-0.93, 2.96]
5th quintile	-3.09*	[-4.47, -1.71]	-0.88	[-2.55, 0.80]
Year Two (N = 19,677)				
1st quintile	4.82*	[2.85, 6.78]	2.60*	[0.40, 4.80]
5th quintile	-4.15*	[-5.82, -2.48]	-2.06*	[-3.83, -0.29]

(continued)

Table 4-11 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better COC) (continued)				
Year Three (N = 15,307)				
1st quintile	4.83*	[2.60, 7.06]	2.12	[-0.78, 5.01]
5th quintile	-3.83*	[-5.68, -1.99]	-1.52	[-3.67, 0.63]
Overall (N = 25,130)				
1st quintile	4.20*	[2.59, 5.82]	1.84	[-0.17, 3.84]
5th quintile	-3.64*	[-4.99, -2.29]	-1.45	[-3.06, 0.16]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 person quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events relative to the CG. A *positive* value corresponds to an *increase* in the rate of events relative to the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found little evidence that the ADK Demonstration impacted the access to care and care coordination measures, with the exception of continuity of care. Specifically, **Table 4-11** shows that:

- **Continuity of care**, as measured by concentration of visits, decreased among Medicare ADK Demonstration beneficiaries compared with beneficiaries assigned to

PCMH practices. Specifically, the ADK Demonstration increased the *overall* likelihood that a demonstration beneficiary's COC Index was in the lowest quintile and decreased the *overall* likelihood that the COC Index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, whereas the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits; primary care visits as a percentage of total visits; 14-day follow-up visits following discharge; and 30-day unplanned readmissions.

Table 4-12
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and
coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits										
Year One	11,972	6.45*	[2.95, 9.94]	6.53*	[3.01, 10.04]	12,822	7.47*	[3.96, 10.98]	6.23*	[3.17, 9.29]
Year Two	13,455	8.96*	[5.59, 12.33]	8.46*	[5.31, 11.61]	12,598	9.63*	[6.71, 12.55]	9.04*	[6.18, 11.90]
Year Three	16,427	5.32*	[0.02, 10.62]	4.08*	[0.88, 7.28]	14,622	4.00*	[0.66, 7.35]	3.28	[-0.37, 6.94]
Overall	22,376	6.98*	[2.99, 10.96]	6.00*	[3.13, 8.87]	24,895	6.60*	[3.54, 9.65]	5.50*	[2.59, 8.42]
Medical specialist visits										
Year One	11,972	0.74	[-2.43, 3.91]	2.13	[-0.58, 4.83]	12,822	-2.11*	[-3.82, -0.41]	-0.69	[-1.65, 0.26]
Year Two	13,455	-0.90	[-3.52, 1.72]	-0.20	[-1.26, 0.86]	12,598	-3.31*	[-5.18, -1.44]	-1.78*	[-3.02, -0.53]
Year Three	16,427	-0.12	[-1.21, 0.97]	0.39	[-0.80, 1.58]	14,622	-2.13*	[-3.89, -0.37]	-1.16	[-2.64, 0.32]
Overall	22,376	-0.10	[-1.06, 0.87]	0.59	[-0.55, 1.74]	24,895	-2.32*	[-3.84, -0.79]	-1.21*	[-2.30, -0.11]
Surgical specialist visits										
Year One	11,972	0.33	[-0.36, 1.03]	DNC	DNC	12,822	0.89*	[0.03, 1.75]	-0.15	[-1.11, 0.82]
Year Two	13,455	-0.65	[-2.18, 0.88]	DNC	DNC	12,598	-1.22	[-2.53, 0.09]	-1.78*	[-3.20, -0.35]
Year Three	16,427	-0.50	[-1.56, 0.56]	DNC	DNC	14,622	-1.16*	[-2.31, -0.01]	-1.54*	[-2.71, -0.37]
Overall	22,376	-0.34	[-1.22, 0.53]	DNC	DNC	24,895	-0.60	[-1.33, 0.12]	-1.31*	[-2.35, -0.27]

(continued)

Table 4-12 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and
coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits as percentage of total visits (% PC)										
Year One										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	5,174	-8.39*	[-10.95, -5.83]	-7.73*	[-10.55, -4.92]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		1.76*	[1.15, 2.37]	0.75*	[0.05, 1.45]
% PC = 100%		N/A	N/A	N/A	N/A		6.63*	[4.24, 9.01]	6.98*	[4.22, 9.75]
Year Two										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	3,183	-17.01*	[-23.03, -10.98]	-11.45*	[-16.20, -6.70]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.61	[-1.08, 2.31]	-1.87*	[-3.63, -0.11]
% PC = 100%		N/A	N/A	N/A	N/A		16.39*	[9.98, 22.81]	13.32*	[7.75, 18.89]
Year Three										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	1,636	-13.46*	[-23.24, -3.67]	-8.10	[-18.07, 1.86]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.35	[-1.30, 2.00]	-1.55	[-3.23, 0.14]
% PC = 100%		N/A	N/A	N/A	N/A		13.11*	[3.60, 22.61]	9.65	[-1.24, 20.54]
Overall										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	6,821	-11.96*	[-16.26, -7.67]	-8.98*	[-12.57, -5.38]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		1.16*	[0.17, 2.16]	-0.46	[-1.50, 0.58]
% PC = 100%		N/A	N/A	N/A	N/A		10.80*	[6.41, 15.19]	9.44*	[5.54, 13.34]

(continued)

Table 4-12 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions										
Year One	N/A	N/A	N/A	N/A	N/A	11,555	0.08	[-0.08, 0.24]	0.13	[-0.04, 0.31]
Year Two	N/A	N/A	N/A	N/A	N/A	10,355	0.04	[-0.07, 0.16]	0.16	[-0.02, 0.33]
Year Three	N/A	N/A	N/A	N/A	N/A	13,550	0.06	[-0.07, 0.20]	0.06	[-0.07, 0.19]
Overall	N/A	N/A	N/A	N/A	N/A	21,064	0.05	[-0.06, 0.15]	0.11	[-0.03, 0.24]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category. A *positive* value corresponds to an increase in the likelihood of observing a value in the category.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported due to the low frequency of readmissions among children.

ADK = Adirondack Medical Home; CG = comparison group; DNC = regression model did not converge; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults, several measures of access to care and care coordination were statistically significantly different from the CGs. Among children, we found little evidence that the ADK Demonstration impacted the access to care and care coordination measures, with the exception of primary care visits. Specifically, **Table 4-12** shows that:

- Among Medicaid children and adults, the *overall* likelihood of having **primary care visits** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicaid adults, the *overall* likelihood of having **medical specialist visits** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicaid adults, the *overall* likelihood of having **surgical specialist visits** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults, *overall primary care visits as a share of total visits* increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices. Specifically, the ADK Demonstration was associated with a decrease in the *overall* likelihood that a demonstration beneficiary had fewer than 70 percent of all their visits in primary care settings and an increase in the *overall* likelihood that a demonstration beneficiary had 100 percent of all their visits in primary care settings compared with beneficiaries assigned to PCMH or non-PCMH practices.

Among children and adults, no statistically significant *overall* impacts were observed for the 30-day unplanned readmissions measure, and among children, no statistically significant *overall* impacts were observed for the medical specialist and surgical specialist visits and primary care visits as a share of total visits.

4.4.3 Discussion of Access to Care and Coordination of Care

As part of practice transformation efforts associated with the MAPCP Demonstration, the ADK Demonstration practices established new protocols and processes for same-day appointments and offered after-hours telephone triage service, after-hours on-call duty, and weekend hours for office visits, with the goal of enhancing patient access to primary care and reducing reliance on specialists. There was no evidence overall that the ADK Demonstration was associated with an increase in the rate of primary care visits or a decrease in the rate of medical specialist or surgical specialist visits for Medicare beneficiaries. However, there was evidence of an increase in the rate of primary care visits among Medicaid adult and child beneficiaries and a decrease in the rate of medical and surgical specialist visits among adult Medicaid beneficiaries.

It is interesting that Medicaid beneficiaries had an increase in primary care visits and a decrease in specialist visits, but Medicare beneficiaries did not. One possible explanation for the increase in primary care visits among Medicaid beneficiaries is that the changes made by practices to increase access outside typical business hours allowed greater access to Medicaid

patients who often have school and work obligations during normal business hours. A factor that may have reduced the need for primary care among Medicare beneficiaries is that many of them have chronic conditions, and patients with chronic conditions were a focus of ADK Demonstration practices' intensive care coordination efforts. Medicare patients may therefore have received more intensive care management and learned techniques to improve self-management of their conditions, thus reducing their need for a higher frequency of primary care visits. The decrease in the use of specialists among Medicaid beneficiaries may be related to Pod staff and care managers' efforts to create better referral protocols to link patients to needed community support resources and nontraditional care and to connect their patients to specialized resources, such as home health services and local behavioral health care providers. This increased attention for better referral protocols may have contributed to the decrease in the need for specialist visits, particularly among Medicaid beneficiaries with chronic conditions.

Pod 3 reported transitioning from heavy reliance on providers' care management referrals to using data pulled from EHRs to identify patients needing care management. Pod staff and care managers created better referral protocols to link patients to needed community support resources and nontraditional care. At the same time, care manager teams improved the ability to connect their patients to specialized resources, such as home health services and local behavioral health care providers, both severely lacking in the region despite a high demand for these services.

On a positive note, the ADK Demonstration was associated with a decrease in the rate of 30-day unplanned readmissions among ADK Demonstration Medicare beneficiaries relative to both the PMCH and non-PCMH CGs. This finding is consistent with practices' reports that efforts were made to coordinate care more effectively after hospitalizations with hospital discharge planners and care transition nurses. Practice-based care managers across all Pods followed patients after hospital discharge by proactively scheduling follow-up visits with their provider and receiving their medical chart information from hospital discharge planning or care transition staff. Greater availability of data for care managers and providers through EHR systems and other data analytics support increased care coordination capacity during the evaluation period may have further contributed to reductions in 30-day unplanned readmissions.

There was some evidence that the ADK Demonstration was associated with a decrease in continuity of care (as measured by concentration of visits) among Medicare beneficiaries, but none from the Medicaid claims analysis. Site visit findings do not provide any explanations for why ADK Demonstration practices experienced a trend of reduced continuity of care among Medicare beneficiaries. The finding that ADK Demonstration practices experienced significantly lower COC Index values than the CGs warrants further exploration of possible factors that may be contributing to this outcome.

4.5 Beneficiary Experience with Care

This section describes the changes practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (**Section 4.5.1**); beneficiaries' experiences with key aspects of their care, such as communicating with providers, accessing care, getting help with self-managing their chronic conditions, and being involved in shared decision making about treatment (**Section 4.5.2**); and a synthesis of these findings (**Section 4.5.3**). This analysis

draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

4.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

Several features of the ADK Demonstration are expected to improve patient experience with care. These features include

- better access to and coordination of care;
- adequate time and guidance from providers;
- assistance with self-management to empower patients to manage their health;
- enhancement of patient-provider communication through the use of patient portals, which was a focus during Year Three;
- support for prevention and wellness activities; and
- help with transitions of care between care settings and multiple providers.

Stakeholders developed and refined these features throughout the evaluation period. Care managers played a major role in patient engagement and teaching patients self-management. In Years Two and Three, care managers from all Pods received ongoing training in effective patient engagement methods, such as motivational interviewing. Year Three practice transformation activities, also described in *Section 4.2* of this chapter, were expected to improve beneficiary experience.

Health IT also played an increasingly important role in improving beneficiary experience with care. As previously discussed, many practices activated patient portal software through their EHRs in Years Two and Three to provide patients with access to their medical information and secure messaging with their provider. Patient portals also offered educational materials for specific diseases/conditions as well as lab and imaging results. Providers were excited about the new medium for provider-patient communication and noted that some of their patients were using the portals.

4.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of the ADK Demonstration. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. Beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales

combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP.
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner.
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems.
- *Self-management support.* Two yes/no questions about goal setting and barriers to care.
- *Shared decision making.* Three items regarding medication use.
- *Office staff.* Two items about interactions with medical practice office staff.

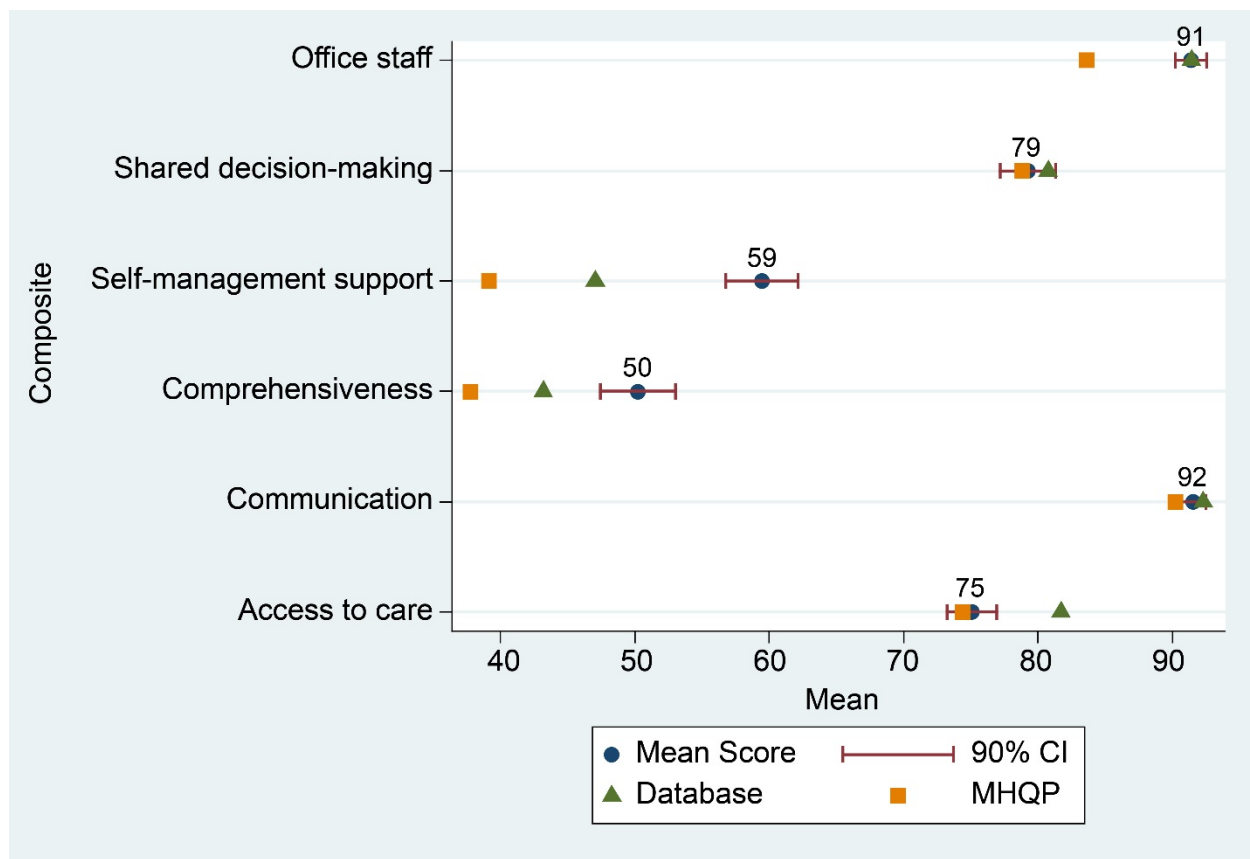
All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 4-2** contains the composite scales of New York and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.⁹ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

Although New York state officials and providers reported an extensive level of practice transformation, beneficiaries did not experience as consistent a level of change, and there does not appear to be a meaningful overall finding when comparing the results across the CAHPS survey scores and two reference scores. Although beneficiaries provided high scores from the CAHPS survey for provider communication and office staff that was also consistent with two reference sources (CAHPS database and MHQP), scores from the CAHPS survey were considerably lower for self-management support and comprehensiveness, yet still higher than the reference scores. It should be taken into consideration that the Adirondack region of the state continues to be a medically underserved region, particularly for behavioral health and social support needs, so one might expect for the comprehensive scores to be lower than other beneficiary experience of care domains. CAHPS survey scores for shared decision making were more modest (79) and consistent with its two reference scores.

Each subsection below offers a description of focus group and interview findings that provide context for the CAHPS survey summary scores, and **Section 4.5.3** relates the findings on beneficiaries' experience of care with relevant components of the ADK Demonstration.

⁹ The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The Database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study was the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 4-2
New York's CAHPS PCMH survey composite measures compared with two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

As shown in **Figure 4-2**, New York scored significantly higher than either standard for both self-management and comprehensiveness. It achieved a score on communication and shared decision making that was more comparable to both standards. New York's score for office staff interaction was higher compared with MHQP but comparable to the CAHPS database. For access, New York's score was comparable with MHQP but lower than the score for the CAHPS database standard.

Communication. On the basis of Medicare FFS beneficiaries' responses to our survey, New York ADK Demonstration practices earned an adjusted score of 92 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (**Figure 4-2**). This composite reflects that:

- 96 percent of respondents felt that their providers usually or always knew the important information from their medical history.
- 97 percent believed that their providers usually or always listened carefully to them.

- 98 percent felt that their providers usually or always showed respect for what they had to say.
- 97 percent said that their providers usually or always explained things in a way that was easy to understand.
- 97 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns.
- 97 percent felt that their providers usually or always spent enough time with them.

Another related survey question revealed that 90 percent of Medicare FFS respondents said they spoke with someone from their provider's practice at each visit about all of the prescription medicines they were taking.

Our focus groups, which included not only Medicare FFS beneficiaries and their caregivers but also Medicaid beneficiaries, yielded similarly positive findings—although some contrary views did emerge from a few participants. Below, we present focus group findings on the degree to which beneficiaries felt their provider understands them and effectively communicates.

Provider understands them. Nearly all focus group participants felt that their PCPs knew them as people and remembered the specifics of their health care needs. A few noted that they felt that EHRs had contributed to the PCP's ability to remember the specifics of their medical history, because the PCP can easily look up their medical history to see past test results and medications they have been taking. A few participants felt that their PCP did not know them as well. A few said that their PCP had recently left their practice, and they either had not found a new PCP they were happy with or their new PCP simply did not know their history yet.

Effectiveness of communication. Nearly all focus group participants thought that their PCPs were very good at listening to them and taking the time to try to understand their concerns. They also felt like the PCP spoke in terms they could understand, and if they did not understand something, all they had to do was ask. Participants also appreciated their PCPs being "honest" and "frank." One criticism of PCPs' communication was that some participants said they had only 15 minutes with them for any appointment other than the annual exam, and that sometimes this felt rushed and they did not have enough time to ask all of their questions. Others said that they did not have that experience: "I'm never pushed out of the office—she always sits and listens to me." A few participants also mentioned that they did not like their PCP typing on their computers while they are talking, but simultaneously acknowledged that it was helpful to have the information in the EHR.

Many participants said that if they called with a question for their PCP, the PCP called them back promptly to discuss it with them, and that their PCP had called them at home on multiple occasions, including at night and on weekends. A few participants, however, said that it was typically a nurse who called them, and they would prefer to talk to the PCP—speaking to the nurse felt "one person removed." Several participants also mentioned getting a quick response to questions through the patient portal.

Access to care. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, ADK Demonstration practices earned a weighted score of 75 out of 100 on a multiquestion composite scale that measures how easily patients can access their primary care practices (*Figure 4-2*). This score perhaps was lower than expected, given the state's requirement that all ADK Demonstration practices offer 24-hour-a-day, 7-day-a-week access to care. Further discussion of beneficiary experience with access to care can be found in *Section 4.4*.

Care coordination. In the MAPCP Demonstration, care coordination often was linked with access to care, as care managers often coordinated the access of patients to other medical and nonmedical services. *Section 4.4* contains findings from focus group discussions of their experiences with care managers, coordination observed between their primary care practices and local hospitals, and coordination observed with specialists.

Self-management support. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, ADK Demonstration practices earned a weighted score of 59 out of 100 on a multiquestion composite scale that assesses the degree to which practices offered patients self-management support (*Figure 4-2*). This composite reflects that:

- 72 percent of respondents had practice staff who talked to them about specific health goals.
- 45 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

Focus group participants generally reported that their PCPs supported them in caring for their own health and managing their chronic conditions. Many said that their PCPs encouraged them to exercise, lose weight, and stop smoking. A few mentioned that their provider had stopped pushing them on lifestyle changes, because they had given up on getting them to change.

A few had been referred to a dietitian or nutritionist and found that they were helpful with supporting them in healthy eating. Some participants also said that they receive educational materials, for example, about medications they are about to go on, or about strategies for controlling cholesterol. Few participants mentioned that they had been to a class of any type. Two had gone to nutrition classes when they were diagnosed with diabetes; one was going to go to a class on gastric bypass surgery to see if she might want to do it, and one went to an anger management class after having a hysterectomy, which she found "useless."

Most participants did not feel that they had a "care plan," and few had discussed goals with their PCP. Participants generally reported that their providers monitored their health carefully, for example, by tracking their weight, cholesterol, and blood sugar and by managing their medications to avoid interactions.

Shared decision-making. ADK Demonstration practices earned a score of 79 out of 100 on a composite that assesses the degree to which practices engage in shared decision-making with patients (*Figure 4-2*). This composite reflects that:

- 96 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication.
- 83 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication.
- 78 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Focus group participants generally felt that they and their PCPs were partners or a team in making decisions about their health care, with “give and take.” For example, participants said that their PCPs would review test results with them and work with them to address any questions or concerns that they had. In contrast, a few Medicaid and dually eligible participants said that they felt like their providers did not listen to their concerns. Many other Medicaid and dually eligible participants said they had had similar experiences of feeling like they were not listened to or did not have a say elsewhere, but only a couple had had similar experiences with their current PCP. A few participants noted that advocating for themselves was necessary to ensure that their voices were heard.

Office staff. ADK Demonstration practices earned a score of 91 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks in a practice (**Figure 4-2**). When asked to give a global rating of their provider, 92 percent of Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. More than half (56%) gave their provider the highest possible rating—10 out of 10.

Many participants noted an increase in the number and specialization of staff. Several others noted that there seem to be more PAs, NPs, “and other people with three or four letters after their names that I have no idea what they are.” One commented that this is because the doctors are overloaded, and another commented that you were more likely to see a PA or NP than your PCP (although many participants had a PA or NP as their PCP). Some Glens Falls participants commented that Hudson Headwaters is expanding and adding specialists to the practice.

Additional topics covered in the focus groups. The focus groups covered several additional topics, including participants’ perceptions of their providers’ medical expertise, their team-based approach to care, the use of ERs, patient portal availability and usage, and activities practices implemented to seek patient feedback.

Medical expertise. For the most part, participants highly valued their PCPs’ knowledge and commitment to resolving their medical problems. Participants said that their PCPs were “careful,” “don’t miss anything,” and “go the extra mile.”

Team-based approach to care. A few participants noted that each PCP had their own nurse, so that they generally saw the same nurse every time they came in. Consequently, the nurses came to know a lot about them as well.

Patient portal. All groups reported that their practices had a patient portal, and that this was new within the last year or two. In Glens Falls, the majority of participants had heard of it, and more than half were using it. Participants said that Hudson Headwaters had sent out “all kinds of information” about the portal when it started and had a desk set up in the office to show people how to use it. In Plattsburgh, only a few participants had heard of the patient portal, and even fewer had used it.

Most of the people using the portal were very enthusiastic about it—they found it easy to use (except for having to remember the password) and very useful. They used it to keep track of their medications, review test results, schedule appointments, communicate with their providers, and pay bills. Some of those who had not used the portal were very interested in trying it, but others were not. Some said they did not have a computer or were computer illiterate. Other participants liked being able to see their test results online, but others felt uncomfortable seeing them without having their provider there to talk them through the results and what they mean.

Patient feedback. About half of participants said they had been asked for feedback from their PCP—primarily through questionnaires received in the mail or at the practice. Several participants in Glens Falls mentioned that Hudson Headwaters used to have a screen near the check-out where you could provide feedback. They do not have this anymore, but they do still have a postcard with a Web site address where you can provide feedback.

4.5.3 Discussion of Beneficiary Experience with Care

Several features of the ADK Demonstration were expected to improve patient experience with care, including better access to and coordination of care, adequate time and guidance from providers, assistance with self-management to empower patients to manage their health, enhancement of patient-provider communication through the use of patient portals, support for prevention and wellness activities, and help with transitions of care between care settings and multiple providers. In general, there were mixed experiences in the state achieving the desired level of improvement in these areas. In general, Medicare beneficiaries in the ADK Demonstration rated their physicians quite highly, both in focus groups and in the CAHPS PCMH survey in absolute terms and relative to the CGs. In absolute terms, beneficiaries rated their physicians on the CAHPS survey very highly in terms of communications and office staff interactions.

Focus group participants’ sentiments regarding their interactions with physicians and other office staff was also favorable and overall a positive experience for Medicare and Medicaid beneficiaries. Thus, it is difficult to ascertain whether, from the patients’ perspective, there were clear improvements in how their providers teach self-management, managed their conditions, and improved overall access to care.

Nearly all focus group participants felt that their PCPs knew them as people, remembered the specifics of their health care needs, and were very good at listening to them and taking the time to understand their needs. These sentiments among focus group participants were consistent with providers’ reports during site visit interviews that most PCPs in the Adirondack region take a special interest in knowing their patients on a personal level and use telephone follow-up calls as one way to reach their patients and address their needs more effectively.

Improving patient self-management of conditions and engaging in shared decision making might have been relatively advanced PCMH capabilities that take more time to develop. Practices might not have been able to focus on these advanced capabilities until after they have first mastered more fundamental capabilities, such as care coordination and the direct provider-to-patient interaction during office visits. In addition, few focus group participants had been referred to classes or a dietician for improved nutrition, and most also did not feel they had a “care plan” with their PCPs that outlined self-management goals. However, focus group participants generally felt that their PCPs were partners in making decisions about their health care.

4.6 Effectiveness (Utilization and Expenditures)

This section describes the savings New York expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees’ views on the likelihood of these savings materializing (*Section 4.6.1*), impacts on service utilization and expenditures (*Section 4.6.2*), a decomposition of the impacts on expenditures (*Section 4.6.3*), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 4.6.4*), and a synthesis of these findings (*Section 4.6.5*).

4.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

New York’s MAPCP Demonstration application assumed that the ADK Demonstration would achieve budget neutrality for the MAPCP Demonstration through a 10 percent reduction each in hospital admissions for ambulatory care sensitive conditions (ACSC), readmissions, and ER visits, producing gross savings to Medicare over 3 years of \$11.5 million, or \$3.7 million net of payments to practices. During the 2014 site visit, Pods and practices felt that a key feature of the ADK Demonstration that would ultimately help achieve these goals was continuing efforts to reduce ER visits or avoidable hospitalizations through rigorous care management services, open-access scheduling and extended hours, and care transition programs for beneficiaries leaving the hospital. These initiatives were implemented with the expressed goal of altering patterns of acute-care and ER utilization and expenditures.

Throughout the demonstration period, many practices tweaked some processes to ensure that they were effectively reaching patients needing additional care management services (e.g., high utilizers of the ER). As previously discussed, Pods 2 and 3 moved to a staff model for care management that embedded a dedicated care manager within each practice location. Providers became more comfortable with referring patients to care managers as part of their everyday routine when it was determined that the patients were high utilizers of acute or emergency care. Care managers worked closely with their local hospitals to obtain and then review daily or monthly ER visit reports. Care managers then made calls to these patients to provide education on proper use of the ER and the availability of the after-hours care. However, few focus group participants said that their PCPs had talked to them about reducing ER use. This may be related to the fact that the focus group participants claimed their use of the ER was typically only for true emergencies. Numerous participants in the Glens Falls groups commented that they are now using the ER less because of a new urgent care clinic. In Plattsburgh, participants said that their PCPs actually encourage them to go to the ER. Many noted that, if you call after office hours, the recording says to go to the ER if it is an emergency.

The P4P component of the PMPM payments was expected to have an impact on utilization and expenditures, and New York made its first P4P payouts in 2014. Providers had mixed views on the impact of the P4P bonuses, with some claiming that the amounts were too small to motivate any meaningful change and others that the amount was a good starting point. State officials, in particular, viewed the P4P component of their payments as a move away from volume-based reimbursement and more toward a value-based model that could potentially reduce utilization and expenditures for acute-care or ER services.

4.6.2 Impacts on Utilization and Expenditures

The ADK Demonstration is expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the ADK Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 4-13** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.
- **Table 4-14** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

- **Table 4-15** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries.
- **Table 4-16** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries.

For Medicare, estimates in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures included all 14 quarters of data. In addition, we noted statistically significant overall findings following each results table, with one exception. We also noted when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend.

Not all services identified in the Medicare claims could be readily identified in the Medicaid claims, so we limited the analysis of Medicaid expenditures to total Medicaid, acute-care, ER, specialty care, primary care, and prescription drug expenditures. We did not report one measure that we do report in other states: long-term care expenditures for Medicaid enrollees. Over the course of the ADK Demonstration, New York rolled out managed care in the Adirondack region. As a result, long-term care expenditures significantly decreased. The decrease was more significant among beneficiaries in the ADK Demonstration because fewer beneficiaries were enrolled in managed care at the beginning of the ADK Demonstration relative to the beneficiaries in PCMH and non-PCMH practices. Therefore, differences in the overall change in long-term care expenditures could not be attributed solely to the ADK Demonstration.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in *Section 4.6.5*.

Table 4-13
New York: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 21,462)	1.61	[-30.12, 33.34]	-14.27	[-48.27, 19.73]
Year Two (N = 22,744)	17.52	[-12.75, 47.79]	-20.19	[-53.51, 13.12]
Year Three (N = 23,002)	7.38	[-24.44, 39.21]	-2.36	[-39.18, 34.45]
Overall (N = 29,093)	4.64	[-19.58, 28.85]	-9.67	[-33.06, 13.73]
Overall Aggregate	\$3,892,202		-\$8,118,395	
Acute care				
Year One (N = 21,462)	-9.56	[-24.43, 5.32]	7.10	[-12.25, 26.44]
Year Two (N = 22,744)	-18.05	[-37.34, 1.25]	-20.90	[-44.03, 2.23]
Year Three (N = 23,002)	-22.08*	[-41.00, -3.17]	-9.99	[-32.50, 12.52]
Overall (N = 29,093)	-18.92*	[-31.67, -6.16]	-6.34	[-19.02, 6.34]
Overall Aggregate	-\$15,884,465*		-\$5,324,154	
Post-acute care				
Year One (N = 21,462)	3.30	[-5.79, 12.39]	-5.06	[-16.49, 6.37]
Year Two (N = 22,744)	8.02	[-2.93, 18.96]	-10.27	[-22.01, 1.47]
Year Three (N = 23,002)	5.09	[-5.09, 15.27]	-3.77	[-14.87, 7.33]
Overall (N = 29,093)	5.05	[-3.72, 13.83]	-4.94	[-13.43, 3.55]
Overall Aggregate	\$4,244,346		-\$4,150,669	

(continued)

Table 4-13 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 21,462)	8.22*	[5.54, 10.89]	5.05*	[1.27, 8.84]
Year Two (N = 22,744)	3.53*	[0.51, 6.56]	3.57	[-0.15, 7.29]
Year Three (N = 23,002)	1.60	[-1.50, 4.70]	5.09*	[1.95, 8.23]
Overall (N = 29,093)	3.96*	[1.31, 6.61]	4.70*	[1.83, 7.57]
Overall Aggregate	\$3,326,443*		\$3,946,461*	
Outpatient				
Year One (N = 21,462)	17.03*	[8.58, 25.48]	8.71	[-2.50, 19.92]
Year Two (N = 22,744)	27.44*	[20.54, 34.35]	17.28*	[5.48, 29.09]
Year Three (N = 23,002)	26.74*	[19.04, 34.44]	9.73	[-13.54, 32.99]
Overall (N = 29,093)	23.36*	[17.22, 29.50]	10.77	[-4.09, 25.63]
Overall Aggregate	\$19,614,644*		\$9,042,904	
Specialty physician				
Year One (N = 21,462)	-7.03*	[-13.20, -0.86]	-7.62*	[-11.56, -3.67]
Year Two (N = 22,744)	-3.85	[-10.00, 2.30]	-3.73	[-8.61, 1.15]
Year Three (N = 23,002)	-8.64*	[-15.24, -2.05]	-0.73	[-6.93, 5.46]
Overall (N = 29,093)	-8.13*	[-13.28, -2.98]	-4.46	[-8.98, 0.06]
Overall Aggregate	-\$6,826,623*		-\$3,743,683	
Primary care physician				
Year One (N = 21,462)	-4.75*	[-8.53, -0.98]	-1.87	[-5.26, 1.53]
Year Two (N = 22,744)	-5.08*	[-8.50, -1.66]	-2.86	[-6.25, 0.53]
Year Three (N = 23,002)	-2.02	[-4.73, 0.68]	-3.18	[-6.48, 0.12]
Overall (N = 29,093)	-3.67*	[-6.39, -0.96]	-3.01	[-6.24, 0.23]
Overall Aggregate	-\$3,084,790*		-\$2,524,028	
Home health				
Year One (N = 21,462)	-2.94*	[-5.66, -0.23]	-5.18*	[-9.28, -1.07]
Year Two (N = 22,744)	2.19	[-1.01, 5.39]	-2.13	[-6.29, 2.03]
Year Three (N = 23,002)	2.69	[-0.97, 6.34]	0.45	[-2.98, 3.89]
Overall (N = 29,093)	1.12	[-2.01, 4.25]	-1.78	[-5.17, 1.61]
Overall Aggregate	\$940,547		-\$1,493,978	
Other non-facility				
Year One (N = 21,462)	0.01	[-3.60, 3.62]	-4.83*	[-8.35, -1.30]
Year Two (N = 22,744)	1.46	[-2.46, 5.37]	-1.80	[-4.82, 1.22]
Year Three (N = 23,002)	0.61	[-3.55, 4.76]	-2.55	[-9.50, 4.40]
Overall (N = 29,093)	0.81	[-2.55, 4.16]	-3.52	[-8.89, 1.86]
Overall Aggregate	\$676,373		-\$2,951,999	
Laboratory				
Year One (N = 21,462)	-2.14*	[-3.21, -1.06]	-0.42	[-1.38, 0.53]
Year Two (N = 22,744)	-1.66*	[-2.71, -0.61]	-0.68	[-1.60, 0.25]
Year Three (N = 23,002)	-1.05*	[-1.94, -0.16]	-0.87	[-1.84, 0.10]
Overall (N = 29,093)	-1.54*	[-2.42, -0.66]	-0.71	[-1.60, 0.17]
Overall Aggregate	-\$1,290,271*		-\$598,476	

(continued)

Table 4-13 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Imaging				
Year One (N = 21,462)	-1.86*	[-3.05, -0.67]	-1.46*	[-2.66, -0.26]
Year Two (N = 22,744)	-2.82*	[-4.11, -1.53]	-2.40*	[-3.59, -1.21]
Year Three (N = 23,002)	-3.07*	[-4.88, -1.27]	-2.42*	[-4.03, -0.81]
Overall (N = 29,093)	-2.86*	[-4.26, -1.46]	-2.26*	[-3.54, -0.99]
Overall Aggregate	-\$2,402,095*		-\$1,898,845*	
Other facility				
Year One (N = 21,462)	0.05	[-0.07, 0.16]	-0.03*	[-0.06, 0.00]
Year Two (N = 22,744)	0.04	[-0.07, 0.16]	-0.03*	[-0.06, 0.00]
Year Three (N = 23,002)	0.05	[-0.07, 0.16]	-0.03*	[-0.06, 0.00]
Overall (N = 29,093)	0.05	[-0.07, 0.16]	-0.03*	[-0.06, 0.00]
Overall Aggregate	\$37,971		-\$26,916*	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG. Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.
- Other facility expenditures are close to \$0 in New York.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that the ADK Demonstration changed the growth of some expenditure outcomes, but findings were inconsistent in statistical significance across CGs for several measures. Furthermore, some changes were in the expected direction (e.g., outpatient spending increased and acute-care spending decreased), whereas other changes were not in the expected direction (e.g., primary care spending decreased and spending on ER visits increased). Specifically, **Table 4-13** shows that:

- There was no statistically significant difference in the *overall* growth in **total Medicare expenditures** among beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- The *overall aggregate* growth in **acute-care expenditures** was \$15.9 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **specialty physician expenditures** was \$6.8 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **primary care physician expenditures** was \$3.1 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **laboratory expenditures** was \$1.3 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **imaging expenditures** was \$2.4 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **outpatient expenditures** was \$19.6 million greater among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **imaging expenditures** was \$1.9 million lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **expenditures for ER visits not leading to hospitalization** was \$3.3 million greater among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices and \$3.9 million greater compared with beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* impacts were observed among Medicare beneficiaries for post-acute care expenditures, home health expenditures, or other non-facility expenditures.

Table 4-14
New York: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid ¹										
Year One	11,972	11.79	[-6.06, 29.64]	1.54	[-16.32, 19.40]	12,822	17.29	[-1.58, 36.16]	-6.35	[-28.77, 16.08]
Year Two	13,455	5.00	[-11.21, 21.21]	-5.74	[-19.76, 8.27]	12,598	9.97	[-11.35, 31.29]	-0.92	[-25.81, 23.97]
Year Three	16,427	-2.55	[-17.62, 12.52]	-8.37	[-19.92, 3.19]	14,622	28.27*	[4.17, 52.38]	-1.08	[-33.62, 31.47]
Overall Overall Aggregate	22,376 \$2,308,435	5.31 \$2,308,435	[-8.76, 19.38]	-0.81 -\$350,668	[-14.33, 12.71]	24,895 \$6,674,899	17.51 \$6,674,899	[-0.39, 35.40]	-5.34 -\$2,037,503	[-28.50, 17.81]
Acute care										
Year One	11,972	2.86	[-1.95, 7.67]	4.42	[-1.22, 10.06]	12,822	4.44	[-1.32, 10.20]	5.22	[-1.33, 11.77]
Year Two	13,455	0.01	[-2.70, 2.72]	2.45	[-3.36, 8.26]	12,598	-5.19	[-11.03, 0.65]	2.55	[-3.22, 8.32]
Year Three	16,427	-2.93	[-7.58, 1.73]	-0.04	[-4.18, 4.10]	14,622	0.35	[-5.96, 6.66]	2.71	[-3.43, 8.86]
Overall Overall Aggregate	22,376 -\$53,767	-0.12 -\$53,767	[-3.44, 3.19]	2.59 \$1,125,621	[-2.38, 7.55]	24,895 -\$412,833	-1.08 -\$412,833	[-5.22, 3.06]	2.64 \$1,006,754	[-1.01, 6.29]
ER visits not leading to hospitalization										
Year One	11,972	0.00	[-1.79, 1.79]	0.26	[-0.74, 1.26]	12,822	-0.17	[-2.46, 2.12]	-1.56	[-3.60, 0.49]
Year Two	13,455	-0.86	[-2.73, 1.02]	-0.05	[-1.04, 0.94]	12,598	-1.07	[-2.86, 0.72]	0.99	[-0.63, 2.62]
Year Three	16,427	-0.54	[-1.80, 0.72]	-0.45	[-1.63, 0.72]	14,622	-1.61	[-3.25, 0.04]	-0.78	[-1.95, 0.39]
Overall Overall Aggregate	22,376 -\$367,757	-0.85 -\$367,757	[-2.32, 0.63]	0.02 \$9,534	[-0.96, 1.00]	24,895 -\$506,017	-1.33 -\$506,017	[-2.77, 0.11]	-1.27* -\$484,011*	[-2.18, -0.36]
Specialty physician										
Year One	11,972	0.53	[-0.65, 1.71]	3.35*	[1.82, 4.88]	12,822	5.13*	[2.88, 7.37]	4.40*	[1.94, 6.87]
Year Two	13,455	-3.77*	[-5.20, -2.33]	-1.92	[-4.06, 0.21]	12,598	-2.87*	[-5.54, -0.19]	-1.08	[-3.60, 1.45]
Year Three	16,427	-3.12*	[-4.83, -1.41]	-1.54	[-3.85, 0.78]	14,622	-2.40	[-5.67, 0.86]	-0.90	[-3.71, 1.92]
Overall Overall Aggregate	22,376 -\$901,004*	-2.07* -\$901,004*	[-3.29, -0.85]	-0.45 -\$196,721	[-2.39, 1.48]	24,895 -\$229,509	-0.60 -\$229,509	[-2.87, 1.67]	0.20 \$75,798	[-2.03, 2.43]

(continued)

Table 4-14 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care physician										
Year One	11,972	4.00*	[1.49, 6.51]	5.98*	[1.70, 10.27]	12,822	5.90*	[3.13, 8.66]	10.15*	[6.58, 13.72]
Year Two	13,455	5.75*	[3.08, 8.41]	6.44*	[1.67, 11.21]	12,598	11.90*	[8.31, 15.48]	15.05*	[10.12, 19.97]
Year Three	16,427	2.53	[-0.37, 5.43]	1.68	[-3.51, 6.88]	14,622	7.81*	[3.64, 11.99]	9.94*	[3.79, 16.09]
Overall	22,376	4.43*	[2.10, 6.77]	4.76*	[0.08, 9.45]	24,895	8.20*	[4.61, 11.79]	11.19*	[6.15, 16.22]
Overall Aggregate		\$1,928,742*		\$2,071,791*			\$3,126,994*		\$4,264,807*	
Prescription drugs										
Year One	11,972	-0.33	[-4.35, 3.69]	-4.26	[-9.06, 0.55]	12,822	0.23	[-6.44, 6.91]	-11.74*	[-21.63, -1.85]
Year Two	13,455	-2.45	[-5.86, 0.96]	-5.92*	[-9.56, -2.28]	12,598	6.07	[-0.54, 12.68]	-0.98	[-9.06, 7.09]
Year Three	16,427	-1.91	[-4.74, 0.92]	-4.96*	[-9.32, -0.59]	14,622	14.04*	[5.39, 22.69]	1.54	[-8.63, 11.70]
Overall	22,376	-2.23	[-4.78, 0.32]	-5.22*	[-9.28, -1.16]	24,895	7.31*	[0.92, 13.69]	-4.08	[-11.96, 3.81]
Overall Aggregate		-\$970,358		-\$2,271,652*			\$2,785,798*		-\$1,553,812	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Over the course of the ADK Demonstration, New York rolled out managed care in the Adirondack region. As a result, long-term care expenditures significantly decreased over the course of the ADK Demonstration. The decrease was more significant among beneficiaries in the ADK Demonstration because fewer beneficiaries were enrolled in managed care at the beginning of the ADK Demonstration relative to the beneficiaries in PCMH and non-PCMH practices. Therefore, differences in the overall change in long-term care expenditures could not be attributed solely to the ADK Demonstration, and results are not reported here.

¹ Total expenditures exclude long-term care expenditures.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults, we found evidence that the ADK Demonstration increased the growth in primary care expenditures. We found inconsistent evidence for the other expenditure outcomes in terms of statistical significance across CGs. Specifically, *Table 4-14* shows that:

- Among children and adults, there was no statistically significant difference in the *overall* growth in **total Medicaid expenditures** among beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among adults, the growth in *overall aggregate* **expenditures for ER visits not leading to a hospitalization** was approximately \$484,000 lower among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries in non-PCMH practices.
- Among children, the growth in *overall aggregate* **specialty physician expenditures** was approximately \$901,000 lower among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.
- Among children, the growth in *overall aggregate* **primary care expenditures** was \$1.9 million greater among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices and \$2.1 million greater compared with beneficiaries assigned to non-PCMH practices.
- Among adults, the growth in *overall aggregate* **primary care expenditures** was \$3.1 million greater among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices and \$4.3 million greater compared with beneficiaries assigned to non-PCMH practices.
- Among children, the growth in *overall aggregate* **prescription drug expenditures** was \$2.3 million lower among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to non-PCMH practices.
- Among adults, the growth in *overall aggregate* **prescription drug expenditures** was \$2.8 million greater among Medicaid beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among Medicaid beneficiaries for acute-care expenditures among children and adults. No statistically significant *overall* impacts were observed among Medicaid beneficiaries for expenditures for ER visits not leading to hospitalization among children.

Table 4-15
New York: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 21,462)	-3.95*	[-7.33, -0.58]	-1.60	[-6.42, 3.21]
Year Two (N = 22,744)	-5.77*	[-9.91, -1.64]	-3.84	[-8.90, 1.23]
Year Three (N = 23,002)	-8.06*	[-13.57, -2.55]	-6.46*	[-11.12, -1.81]
Overall (N = 29,093)	-6.09*	[-9.66, -2.52]	-3.71*	[-7.36, -0.07]
Overall Aggregate	-1,705*		-1,039*	
ER visits not leading to hospitalization				
Year One (N = 21,462)	3.70	[-2.84, 10.25]	1.08	[-6.44, 8.60]
Year Two (N = 22,744)	0.36	[-6.99, 7.71]	4.18	[-4.73, 13.08]
Year Three (N = 23,002)	-8.45	[-17.02, 0.12]	4.49	[-5.30, 14.29]
Overall (N = 29,093)	-3.74	[-10.72, 3.23]	2.76	[-5.16, 10.67]
Overall Aggregate	-1,047		772	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found little evidence that the ADK Demonstration changed the utilization, with the exception of all-cause admissions. Specifically, **Table 4-15** shows that:

- The *overall aggregate* number of **all-cause admissions** decreased by 1,705 among Medicare beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of **all-cause admissions** decreased by 1,039 among Medicare beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to non-PCMH practices.
- When beneficiaries assigned to PCMH or non-PCMH practices were used as CGs, *overall* estimates indicated that the ADK Demonstration decreased the rate of **all-cause admissions** among MAPCP Demonstration beneficiaries.

No statistically significant *overall* impacts were observed among beneficiaries for ER visits not leading to hospitalization.

Table 4-16
New York: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions										
Year One	11,972	1.65	[-0.03, 3.33]	1.35	[-0.22, 2.92]	12,822	1.31	[-3.15, 5.78]	1.57	[-2.90, 6.04]
Year Two	13,455	-0.34	[-1.23, 0.55]	-1.05	[-2.98, 0.88]	12,598	-5.01*	[-9.18, -0.85]	-1.52	[-6.71, 3.67]
Year Three	16,427	-1.77*	[-3.09, -0.45]	-2.18*	[-3.49, -0.87]	14,622	-2.30	[-6.85, 2.24]	-1.78	[-5.22, 1.65]
Overall Overall Aggregate	22,376	-0.31 -443	[-1.12, 0.51]	-0.64 -926	[-1.81, 0.53]	24,895	-3.45* -4,387*	[-6.35, -0.55]	-1.12 -1,424	[-4.35, 2.11]
ER visits not leading to hospitalization										
Year One	11,972	23.19	[-7.21, 53.58]	10.22	[-3.52, 23.96]	12,822	21.88	[-11.73, 55.50]	4.87	[-35.70, 45.45]
Year Two	13,455	23.49	[-2.17, 49.15]	13.15*	[0.68, 25.63]	12,598	34.60*	[2.62, 66.58]	42.52*	[12.92, 72.13]
Year Three	16,427	17.39*	[4.56, 30.22]	4.78	[-4.54, 14.10]	14,622	9.40	[-10.48, 29.28]	-1.89	[-18.06, 14.28]
Overall Overall Aggregate	22,376	16.25 23,559	[-3.91, 36.40]	9.05 13,126	[-0.32, 18.43]	24,895	10.73 13,633	[-11.61, 33.07]	-1.65 -2,094	[-20.96, 17.66]

(continued)

Table 4-16 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Low birth weight admissions										
Overall	802	0.11	[-1.11, 1.33]	-3.64	[-8.63, 1.35]	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		1		-28						

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found little evidence that the ADK Demonstration changed the utilization, with some exceptions. Specifically, **Table 4-16** shows that:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** decreased by 4,387 among Medicaid adult beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among both child and adult beneficiaries for ER visits not leading to hospitalization and low birth weight admissions.

4.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories analyzed across all eight MAPCP Demonstration states, we also analyzed categories that New York expected to be affected by the demonstration, as noted specifically in the state's MAPCP Demonstration application. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 4-17** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between beneficiaries assigned to ADK Demonstration practices and two CGs: PCMHs and non-PCMHs.

Table 4-17 contains measures of expenditures for hospital professionals and ER professionals. Details on these measures can be found in **Appendix D**. Expenditure estimates are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data. A *negative* value corresponds to *lower growth* in expenditures, whereas a positive value corresponds to *greater growth*. Estimates are presented overall for all quarters of the demonstration to date.

Table 4-17
New York: Comparison of average MAPCP Demonstration effect estimates for selected expenditures among Medicare beneficiaries: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG Non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 29,093)	-0.88	[-2.80, 1.04]	-0.72	[-2.27, 0.83]
ER professional expenditures Overall (N = 29,093)	-0.72*	[-1.09, -0.35]	-0.75*	[-1.21, -0.29]

NOTES:

- Hospital professional and ER professional expenditures are PBPM.
- Estimates are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. The demonstration period for this report includes 14 quarters, and all 14 quarters are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that the ADK Demonstration decreased growth in targeted expenditure outcomes. Specifically, **Table 4-17** shows that:

- The *overall* growth in **ER professional expenditures** was lower among Medicare beneficiaries assigned to ADK Demonstration practices compared with beneficiaries assigned to either PCMH or non-PCMH practices.

No statistically significant *overall* impacts were observed for hospital professional expenditures.

4.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in New York relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics—gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, whereas net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in *Table 4-13* from *Section 4.6.2*. (See *Appendix C* for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from *Table 4-13*. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP fees. Positive net savings estimates denote that either there were gross losses or the MAPCP fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 4-18 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 14 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 4-18
New York: Estimates of gross savings, fees paid, and net savings and return on fees

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	−369,786	−7,661,142	6,921,570	\$1,588,136	−\$1,957,921	−\$9,249,277	\$5,333,435	−0.23
Year Two	−4,217,074	−11,502,985	3,068,836	\$1,650,271	−\$5,867,346	−\$13,153,256	\$1,418,565	−2.56
Year Three	−1,807,383	−9,601,051	5,986,285	\$1,664,165	−\$3,471,548	−\$11,265,216	\$4,322,120	−1.09
Q13–Q14	2,502,041	−2,273,430	7,277,513	\$848,354	\$1,653,688	−\$3,121,784	\$6,429,159	2.95
All Years	−3,892,202	−24,229,050	16,444,647	\$5,750,926	−\$9,643,127	−\$29,979,976	\$10,693,721	−0.68
Relative to non-PCMH comparison beneficiaries								
Year One	\$3,279,271	−\$4,532,956	\$11,091,497	\$1,588,136	\$1,691,135	−\$6,121,092	\$9,503,361	2.06
Year Two	\$4,860,323	−\$3,157,921	\$12,878,566	\$1,650,271	\$3,210,051	−\$4,808,192	\$11,228,294	2.95
Year Three	\$578,170	−\$8,437,566	\$9,593,906	\$1,664,165	−\$1,085,995	−\$10,101,731	\$7,929,741	0.35
Q13–Q14	−\$599,368	−\$6,790,411	\$5,591,675	\$848,354	−\$1,447,721	−\$7,638,764	\$4,743,322	−0.71
All Years	\$8,118,395	−\$11,527,548	\$27,764,338	\$5,750,926	\$2,367,470	−\$17,278,474	\$22,013,413	1.41

NOTES:

- Gross Savings: Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- Fees: Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- Net Savings: The estimate of gross savings minus the total Medicare fees paid.
- Return on Fees: The estimate of gross savings divided by total Medicare fees paid.

PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims 2011:Q3–2014:Q4.

In the analysis of budget neutrality relative to the PCMH CG, **Table 4-18** shows that:

- The MAPCP Demonstration in New York resulted in an estimated gross loss of \$3,892,202. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$5,750,926, which translates into a net loss of \$9,643,127. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net losses or savings failed to achieve statistical significance in any individual year of the demonstration.

In the analysis of budget neutrality relative to the non-PCMH CG, **Table 4-18** shows that:

- The MAPCP Demonstration in New York resulted in an estimated gross savings of \$8,118,395. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$5,750,926, which translates into a net savings of \$2,367,470. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net losses or savings failed to achieve statistical significance in any individual year of the demonstration.

4.6.5 Discussion of Effectiveness

The ADK Demonstration aims to achieve lower growth in expenditures and health care utilization through improved access to care through 24-hour-a-day, 7-day-a-week access and open scheduling, delivery of care management services to beneficiaries in need of additional support, follow-up after discharge from the hospital or ER, and significant use of medical record data to identify gaps in needed care. According to stakeholders, these transformations are meant to lower high-cost utilization, such as inpatient and ER care, and increase the use of lower-cost services, such as ambulatory and outpatient facility services, resulting in possible reductions in the rate of expenditure growth. Although there was no overall significant decrease in total Medicare expenditures relative to the PCMH or non-PCMH CGs, there was evidence of a lower growth rate for *overall* acute-care expenditures among beneficiaries in the ADK Demonstration compared with the PCMH CG. Commensurate with this finding, the rate of inpatient admissions was significantly lower in the ADK Demonstration group compared with the PCMH practices. There was no statistically significant reduction in admissions when compared with the non-PCMH practices, yet the point estimates for all years were negative, suggesting that rates of admissions may be lower for the ADK Demonstration group but just did not reach statistical significance. There was also evidence of lower growth rates for *overall* specialty physician, laboratory, and imaging expenditures during the evaluation period. These results among Medicare ADK Demonstration beneficiaries are encouraging and in alignment with the goals of the ADK Demonstration. It is important to note that some of these reductions in expenditures

may have also been driven by lower Medicare cost growth among Pod 2 enrollees compared with the CG; however, similar reductions in expenditures and utilization were not seen for Medicare beneficiaries associated with Pods 1 and 3. See **Table 4-20** and **Section 4.7.3** for more discussion.

In contrast to expectations, Medicare expenditures for ER visits grew faster than ER expenditures for both CGs. Outpatient expenditures also grew faster among the ADK Demonstration practices relative to both CGs. Primary care expenditures grew lower than the CG, which was unexpected given the focus on improving access to PCPs. Providers and stakeholders noted that, while there have been improvements in access, there are still significant shortages of PCPs in the Adirondack region. This continued shortage of PCPs could be an explanation for the observed reductions in primary care expenditures as well as the increased use of the ER. Another potential explanation is the increased use of alternative means of reaching a provider for questions, other than the standard visit. For example, some practices discussed the expanding role of the patient portal in lieu of a face-to-face visit and the slow but steady growth in the number of patients using it to contact the provider.

Consistent with our overall findings of no significant reductions in total Medicare expenditures, Medicare budget neutrality calculations showed gross savings of approximately \$2 million, but once demonstration payments were taken into account, there were net losses of \$3.8 million to Medicare, an amount not statistically significantly different from zero. Budget neutrality calculations using the non-PCMH comparison practices were similar.

Similar to the Medicare population, there was no overall significant decrease in total Medicaid expenditures for children or adults relative to the PMCH or non-PCMH CGs. Findings of statistically significant increases or decreases in the growth of various expenditure categories among adult and child Medicaid ADK Demonstration beneficiaries were mixed. Mostly, there was no overall decrease in growth statistically for most other expenditure types, with two exceptions. The overall growth in expenditures for ER visits not leading to a hospitalization was lower among Medicaid ADK Demonstration adults relative to non-PCMH adult beneficiaries, and the overall growth in specialty physician services was lower among Medicaid ADK Demonstration children relative to children in PCMH practices. Growth in primary care expenditures (among adults and children) and prescription drug expenditures (among adults) was greater relative to CGs, so it is difficult to draw any sound conclusions or ascertain clear trends for the overall growth of Medicaid expenditures during the evaluation period.

Obvious reasons for a lack of significant total reductions in Medicare and Medicaid expenditures relative to the CG(s) are not readily apparent, but one consideration is that, although we could control for certain practice-level characteristics in regression analyses, we could not control for unknown factors, such as the practice transformation initiatives that may have been under way in CG practices. In particular, some non-PCMH comparison practices may be part of health care systems that may have had their own initiatives supporting patient-centered or cost containment activities, or these practices may have been participating in other commercial payer initiatives that support transformation activities. Therefore, the differences between PCMH and non-PCMH practices in terms of their medical home activities may not be as distinct as anticipated. It is possible that as a group ADK Demonstration practices may not have been as successful at reducing cost growth as some CG practices, because these comparison

practices also were making significant strides toward patient-centered care, and this may reflect the unexpected results when comparing ADK Demonstration practices to the two different CGs. Finally, another explanation is the short duration of the intervention; interviewees from site visits often suggested that a 3-year demonstration period was not enough time to change patterns of care for a majority of people.

4.7 Special Populations

This section describes any efforts by practices or the overall ADK Demonstration to target special patient populations (according to our interviews) (*Section 4.7.1*); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization (based on claims data) (*Sections 4.7.2*); and a synthesis of these findings (*Section 4.7.3*).

4.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

New York did not specify any special populations to be targeted at the state level. In Year Three of the demonstration, however, Pods did focus more on certain subgroups within their respective regions. During Year One, Pods focused mostly on beneficiaries with chronic conditions or specific diagnoses, such as diabetes, COPD, and CHF. Beginning in Year Two and increasingly in Year Three, in addition to focusing care management activities on patients with chronic conditions or specific diagnoses, practices also identified subgroups at high risk of developing these chronic conditions. Pod representatives and practices cited a renewed focus on population health improvement, and they recognized that a focus on any particular subgroups should not only include patients with chronic conditions but also patients at a higher risk of developing these conditions without better prevention and healthier behaviors.

Pod 2 practices focused their care management resources on patients with complications from chronic conditions and those with psychosocial issues (including behavioral health), instead of those who simply had a diagnosis of a chronic condition. Care managers usually identified psychosocial or behavioral health care needs during initial appointments with patients.

Pod 2 used risk scores provided in the MAPCP Beneficiary Utilization Files and other payer-specific reports to identify high-risk beneficiaries. Pods 1 and 3 focused on high utilizers of hospital services, including inpatient admissions and ER visits. As described in *Section 4.3.3*, Pod 3 also used the MAPCP Beneficiary Utilization Files to identify patients with certain chronic conditions (e.g., COPD) who needed care management. Practices in Pods 1 and 3 worked closely with local hospitals to identify these high-utilizer patients and coordinated care closely with hospital discharge planners for appropriate care transitions.

All practices across the Pods directed more care management services to patients with behavioral health care needs. This increased attention through care management created a surge in demand for behavioral health care services, but the region was unable to meet this demand because of the low volume of behavioral health care clinics and providers throughout the Adirondack region. Some providers argued that lack of access to behavioral health care services had become the top concern for the region and the demonstration. This sentiment was heard across all Pod regions.

On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, New York practices earned a weighted score of 53 out of 100 on a multiquestion composite scale that measures the degree to which practices ask about behavioral health issues (**Figure 4-2**). This composite reflects that:

- 55 percent of respondents said their practice staff asked if they felt depressed.
- 51 percent reported that practice staff talked to them about things in their lives that worried or stressed them.
- 39 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

4.7.2 Impacts on Special Populations

The ADK Demonstration was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, with behavioral health conditions, with disabilities, or with a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid or who live in rural areas). As mentioned in **Section 4.1** of this chapter, the participating practices are grouped into three geographical Pods to support them at a subregional level with shared services for patient outreach, health education, self-management, community resource integration, and care coordination. Thus, we also include beneficiaries by their assignment to the Pod as a special population.

For these special populations where we find a statistically significant negative association between the New York MAPCP Demonstration and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 4-19** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 4-20** reports on changes in expenditures and utilization for Medicare beneficiaries attributed to practices in Pod 2.
- **Table 4-21** reports on changes in total Medicaid expenditures for the special populations expected to be affected by the demonstration
- **Table 4-22** reports on changes in expenditures and utilization for disabled Medicaid children.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater*

growth in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data. For dually eligible beneficiaries, we only examined total Medicare spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending.

- **Tables 4-23** through **4-33** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 4-31** through **4-35** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 4.7.3**.

Table 4-19
New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM
Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 5,336)	8.99	[-81.33, 99.30]	-54.89	[-153.76, 43.98]
Year Two (N = 5,265)	6.75	[-83.24, 96.74]	-62.52	[-179.10, 54.06]
Year Three (N = 4,744)	24.41	[-81.61, 130.42]	30.23	[-90.24, 150.70]
Overall (N = 6,408)	13.90	[-56.59, 84.39]	-3.41	[-77.92, 71.11]
Overall Aggregate	\$2,569,747		-\$629,724	

(continued)

Table 4-19 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM
Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health conditions only				
Year One (N = 3,253)	13.88	[-60.11, 87.87]	-52.66	[-154.73, 49.41]
Year Two (N = 3,352)	-50.25	[-129.03, 28.54]	-12.41	[-111.65, 86.83]
Year Three (N = 3,294)	-6.90	[-104.03, 90.23]	91.63	[-33.67, 216.94]
Overall (N = 4,178)	-4.02	[-70.40, 62.36]	30.70	[-52.36, 113.76]
Overall Aggregate	-\$483,370		\$3,690,715	
Disabled beneficiaries only				
Year One (N = 6,852)	25.88	[-36.15, 87.91]	-85.66	[-172.30, 0.99]
Year Two (N = 7,234)	25.26	[-26.14, 76.67]	32.14	[-29.58, 93.86]
Year Three (N = 7,505)	46.26	[-16.01, 108.52]	55.04	[-21.57, 131.65]
Overall (N = 9,578)	33.37	[-12.34, 79.09]	15.79	[-29.48, 61.05]
Overall Aggregate	\$8,964,289		\$4,240,697	
Dually eligible beneficiaries only				
Year One (N = 5,167)	29.98	[-32.40, 92.36]	-50.17	[-143.61, 43.27]
Year Two (N = 5,367)	24.51	[-33.02, 82.04]	86.23	[-1.77, 174.24]
Year Three (N = 5,507)	16.23	[-35.33, 67.80]	31.98	[-52.95, 116.90]
Overall (N = 7,048)	17.69	[-24.02, 59.41]	16.52	[-49.00, 82.04]
Overall Aggregate	\$3,545,298		\$3,310,289	
Rural beneficiaries only				
Year One (N = 4,125)	3.06	[-95.09, 101.20]	-11.00	[-80.09, 58.09]
Year Two (N = 4,320)	77.77	[-5.40, 160.93]	50.28	[-0.58, 101.14]
Year Three (N = 4,483)	10.75	[-89.04, 110.54]	-73.02	[-147.31, 1.28]
Overall (N = 5,471)	20.21	[-65.36, 105.78]	-2.19	[-52.32, 47.95]
Overall Aggregate	\$3,321,654		-\$359,828	
Pod 1 and all comparisons				
Year One (N = 2,858)	26.35	[-7.75, 60.46]	11.89	[-24.36, 48.15]
Year Two (N = 2,964)	8.88	[-26.45, 44.21]	-26.68	[-65.02, 11.66]
Year Three (N = 3,017)	2.29	[-53.95, 58.52]	-4.00	[-62.44, 54.44]
Overall (N = 3,723)	3.39	[-33.59, 40.38]	-8.62	[-44.31, 27.08]
Overall Aggregate	\$376,158		-\$955,192	
Pod 2 and all comparisons				
Year One (N = 8,287)	-9.92	[-47.79, 27.94]	-27.12	[-68.31, 14.06]
Year Two (N = 8,921)	-2.70	[-36.83, 31.43]	-40.56*	[-78.23, -2.89]
Year Three (N = 9,282)	-32.05	[-71.82, 7.73]	-40.75	[-84.48, 2.98]
Overall (N = 11,808)	-21.13	[-45.23, 2.97]	-35.03*	[-58.26, -11.80]
Overall Aggregate	-\$7,018,437		-\$11,636,376*	

(continued)

Table 4-19 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM
Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Pod 3 and all comparisons				
Year One (N = 10,317)	-0.57	[-41.70, 40.56]	-15.74	[-58.22, 26.73]
Year Two (N = 10,859)	34.64	[-5.57, 74.85]	-3.03	[-44.86, 38.79]
Year Three (N = 10,703)	42.08*	[8.30, 75.86]	34.00	[-4.50, 72.50]
Overall (N = 13,562)	24.21	[-9.40, 57.83]	10.54	[-21.55, 42.64]
Overall Aggregate	\$9,603,930		\$4,181,621	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Pods are unique to the ADK Demonstration; there are no CG beneficiaries in a Pod. “Pod 1/2/3 and all comparisons” means that beneficiaries in each Pod were compared with all PCMH CG beneficiaries and all non-PCMH CG beneficiaries.

ADK = Adirondack Medical Home; CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we found little evidence that the ADK Demonstration slowed the growth of Medicare expenditures, with the exception of beneficiaries assigned to practices in Pod 2. Specifically, **Table 4-19** shows that:

- The *overall* growth in total Medicare expenditures was \$11.6 million lower among **beneficiaries assigned to ADK Demonstration practices in Pod 2** than among the beneficiaries assigned to non-PCMH comparison practices.

No statistically significant overall impacts of the ADK Demonstration were observed for total Medicare expenditures among beneficiaries with multiple chronic conditions, beneficiaries with behavioral health conditions, disabled beneficiaries, dually eligible beneficiaries, beneficiaries in rural areas, beneficiaries assigned to practices in Pod 1, and beneficiaries assigned to practices in Pod 3.

Table 4-20 shows that this lower growth in total Medicare expenditures in Pod 2 practices was likely driven by lower growth in acute-care, specialty physician, and primary care physician expenditures.

Table 4-20
New York: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries in Pod 2:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG Non-PCMHs	
	Average estimate	90% confidence interval
Total Medicare expenditures		
Year One (N = 8,287)	-27.12	[-68.31, 14.06]
Year Two (N = 8,921)	-40.56*	[-78.23, -2.89]
Year Three (N = 9,282)	-40.75	[-84.48, 2.98]
Overall (N = 11,808)	-35.03*	[-58.26, -11.80]
Overall Aggregate	-\$11,636,376*	
Acute-care expenditures		
Year One (N = 8,287)	-0.70	[-23.23, 21.82]
Year Two (N = 8,921)	-37.86*	[-63.76, -11.96]
Year Three (N = 9,282)	-30.72*	[-56.21, -5.23]
Overall (N = 11,808)	-19.76*	[-32.10, -7.42]
Overall Aggregate	-\$6,562,953*	
ER visits not leading to hospitalization (expenditures)		
Year One (N = 8,287)	-2.79	[-6.25, 0.67]
Year Two (N = 8,921)	-0.34	[-4.64, 3.95]
Year Three (N = 9,282)	0.82	[-2.67, 4.32]
Overall (N = 11,808)	-0.47	[-3.64, 2.69]
Overall Aggregate	-\$156,816	
Specialty physician expenditures		
Year One (N = 8,287)	-10.71*	[-15.17, -6.25]
Year Two (N = 8,921)	-9.07*	[-14.43, -3.71]
Year Three (N = 9,282)	-6.70*	[-13.20, -0.20]
Overall (N = 11,808)	-9.30*	[-14.11, -4.48]
Overall Aggregate	-\$3,087,776*	

(continued)

Table 4-20 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries in Pod 2: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG Non-PCMHs	
	Average estimate	90% confidence interval
Primary care physician expenditures		
Year One (N = 8,287)	-4.60*	[-8.28, -0.92]
Year Two (N = 8,921)	-6.69*	[-10.13, -3.25]
Year Three (N = 9,282)	-7.69*	[-11.06, -4.32]
Overall (N = 11,808)	-6.93*	[-10.16, -3.69]
Overall Aggregate	-\$2,301,575*	
All-cause admissions		
Year One (N = 8,287)	1.92	[-3.42, 7.27]
Year Two (N = 8,921)	2.23	[-3.19, 7.65]
Year Three (N = 9,282)	-4.80	[-10.18, 0.57]
Overall (N = 11,808)	-0.27	[-4.34, 3.80]
Overall Aggregate	-30	
ER visits not leading to a hospitalization		
Year One (N = 8,287)	-3.19	[-12.78, 6.39]
Year Two (N = 8,921)	0.69	[-11.31, 12.69]
Year Three (N = 9,282)	5.10	[-6.04, 16.25]
Overall (N = 11,808)	0.70	[-9.03, 10.43]
Overall Aggregate	78	
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 1,357)	-20.47	[-55.25, 14.30]
Year Two (N = 1,409)	-5.88	[-39.88, 28.13]
Year Three (N = 1,325)	-10.89	[-41.36, 19.59]
Overall (N = 3,284)	-10.56	[-35.12, 13.99]
Overall Aggregate	-1,170	

NOTES:

- Acute-care expenditures and ER expenditure measures are PBPM expenditures.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries assigned to ADK Demonstration practices in Pod 2, *Table 4-20* shows that:

- Among Medicare beneficiaries assigned to ADK Demonstration practices in Pod 2, the *overall* growth in **acute-care expenditures** was \$6.56 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to ADK Demonstration practices in Pod 2, the *overall* growth in **specialty physician expenditures** was \$3.09 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to ADK Demonstration practices in Pod 2, the *overall* growth in **primary care physician expenditures** was \$2.30 million lower compared with beneficiaries assigned to non-PCMH practices.

The ADK Demonstration had a significant impact on total Medicare expenditures, acute care expenditures, specialty physician expenditures, and primary care physician expenditures among beneficiaries assigned to ADK Demonstration practices in Pod 2. No statistically significant overall results were observed among Medicare beneficiaries assigned to ADK Demonstration practices in Pod 2 for the measures of expenditures for ER visits not leading to a hospitalization, all-cause inpatient admissions, ER visits not leading to hospitalization, or 30-day unplanned readmissions compared with beneficiaries assigned to non-PCMH practices.

Table 4-21

**New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration**

Population	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only										
Year One	N/A	N/A	N/A	N/A	N/A	4,310	58.05*	[4.60, 111.49]	11.75	[-37.74, 61.25]
Year Two	N/A	N/A	N/A	N/A	N/A	4,095	36.70	[-13.52, 86.92]	26.60	[-25.69, 78.89]
Year Three	N/A	N/A	N/A	N/A	N/A	4,491	45.80	[-3.49, 95.10]	21.34	[-47.82, 90.50]
Overall	N/A	N/A	N/A	N/A	N/A	6,980	42.90*	[3.58, 82.23]	12.35	[-31.77, 56.46]
Overall Aggregate							\$5,716,355*		\$1,645,161	
Behavioral health conditions only										
Year One	451	130.19*	[49.82, 210.56]	86.69*	[8.41, 164.97]	798	23.49	[-61.65, 108.63]	133.12*	[39.12, 227.11]
Year Two	470	87.80*	[29.92, 145.68]	-37.78	[-103.85, 28.29]	727	0.62	[-90.42, 91.66]	78.16	[-19.35, 175.67]
Year Three	605	-80.32	[-202.21, 41.58]	-89.88*	[-131.90, -47.85]	888	-101.11*	[-181.00, -21.21]	92.22*	[11.41, 173.03]
Overall	724	40.06	[-35.92, 116.03]	-14.89	[-64.20, 34.42]	1,429	-36.88	[-105.36, 31.60]	96.17*	[21.26, 171.08]
Overall Aggregate		\$666,807		-\$247,876			-\$832,434		\$2,170,567*	
Disabled beneficiaries only										
Year One	904	-52.47	[-197.94, 93.00]	-173.00*	[-337.95, -8.04]	2,409	65.39	[-23.83, 154.61]	32.47	[-53.75, 118.70]
Year Two	964	-53.85	[-177.27, 69.56]	-155.03*	[-303.25, -6.80]	2,443	52.73	[-27.34, 132.79]	5.51	[-77.46, 88.48]
Year Three	1,079	-62.15	[-150.48, 26.18]	-180.35*	[-355.16, -5.54]	2,501	101.30*	[26.81, 175.78]	5.37	[-98.47, 109.20]
Overall	1,368	-60.21	[-165.19, 44.77]	-169.92*	[-328.22, -11.61]	3,744	63.99*	[2.39, 125.59]	1.56	[-75.59, 78.72]
Overall Aggregate		-\$2,116,417		-\$5,972,794*			\$5,330,538*		\$130,179	
Asthma diagnosis only										
Year One	508	73.37	[-18.00, 164.74]	-61.15	[-169.09, 46.80]	626	167.39*	[46.33, 288.46]	63.02	[-30.48, 156.53]
Year Two	655	40.12	[-28.53, 108.77]	-40.22	[-130.07, 49.63]	756	202.01*	[77.95, 326.08]	65.72	[-25.82, 157.26]
Year Three	760	50.17	[-47.45, 147.79]	-14.30	[-108.65, 80.05]	844	127.93	[-18.17, 274.03]	125.94*	[2.14, 249.74]
Overall	875	44.59	[-32.57, 121.76]	-20.77	[-114.45, 72.92]	1,154	144.09*	[24.59, 263.59]	79.58	[-9.26, 168.43]
Overall Aggregate		\$981,049		-\$456,859			\$3,412,671*		\$1,884,831	

(continued)

Table 4-21 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Rural beneficiaries only										
Year One	8,532	23.13*	[12.81, 33.46]	6.27	[-10.03, 22.58]	7,810	4.29	[-14.50, 23.09]	-1.17	[-27.67, 25.34]
Year Two	9,558	15.17*	[5.24, 25.10]	-4.83	[-18.15, 8.50]	7,973	25.05*	[3.23, 46.86]	36.18*	[12.92, 59.43]
Year Three	11,576	0.18	[-10.63, 10.99]	-11.92	[-24.69, 0.85]	8,672	35.22*	[6.32, 64.11]	37.83*	[10.01, 65.65]
Overall	15,323	11.16*	[4.00, 18.32]	-2.68	[-14.46, 9.11]	14,861	27.07*	[9.01, 45.12]	22.67*	[1.54, 43.81]
Overall Aggregate		\$3,474,182*		-\$832,854			\$6,126,106*		\$5,131,760*	
Non-White beneficiaries only										
Year One	1,213	5.01	[-46.30, 56.33]	-5.44	[-30.38, 19.50]	1,183	56.19	[-17.00, 129.38]	1.71	[-62.23, 65.66]
Year Two	1,331	-21.49	[-70.77, 27.80]	-28.08*	[-55.49, -0.66]	974	67.83	[-10.51, 146.18]	-36.64	[-86.21, 12.93]
Year Three	1,693	-37.18	[-79.55, 5.20]	-21.42	[-51.03, 8.18]	1,242	74.43	[-11.13, 159.99]	-7.74	[-49.99, 34.52]
Overall	2,422	-9.64	[-49.44, 30.15]	-14.09	[-36.74, 8.55]	2,471	70.43*	[2.52, 138.33]	-19.71	[-50.17, 10.74]
Overall Aggregate		-\$413,715		-\$604,597			\$2,262,312*		-\$633,176	
Pod 1										
Year One	874	10.32	[-22.54, 43.18]	-9.54	[-46.03, 26.94]	1,329	6.22	[-20.92, 33.36]	-17.91	[-43.74, 7.92]
Year Two	1,062	5.73	[-14.48, 25.95]	-9.03	[-31.14, 13.08]	1,684	16.79*	[1.17, 32.41]	7.99	[-12.95, 28.94]
Year Three	1,508	-19.88	[-45.56, 5.80]	-27.99*	[-54.73, -1.24]	2,415	5.54	[-19.19, 30.28]	-20.43	[-55.78, 14.93]
Overall	2,005	-1.77	[-24.78, 21.24]	-12.79	[-40.49, 14.91]	3,534	8.36	[-9.35, 26.07]	-11.76	[-33.32, 9.81]
Overall Aggregate		-\$58,239		-\$420,208			\$396,968		-\$558,029	
Pod 2										
Year One	4,173	19.64*	[3.89, 35.39]	9.26	[-8.99, 27.51]	6,259	22.60*	[3.26, 41.95]	0.80	[-22.01, 23.60]
Year Two	4,750	5.89	[-13.11, 24.88]	-3.17	[-19.77, 13.44]	6,106	11.25	[-18.91, 41.42]	1.36	[-32.63, 35.36]
Year Three	6,032	6.70	[-10.42, 23.82]	3.79	[-9.33, 16.90]	7,270	20.49	[-4.75, 45.73]	-8.44	[-43.62, 26.74]
Overall	8,465	12.29	[-2.84, 27.43]	8.20	[-6.71, 23.10]	12,147	14.76	[-6.88, 36.40]	-6.77	[-33.92, 20.38]
Overall Aggregate		\$1,921,204		\$1,280,923			\$2,864,275		-\$1,313,036	

(continued)

Table 4-21 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Pod 3										
Year One	528	-48.88*	[-97.00, -0.77]	-42.28	[-84.79, 0.23]	5,068	24.55*	[0.22, 48.87]	-4.05	[-30.42, 22.31]
Year Two	445	-2.31	[-62.31, 57.69]	-41.27	[-90.49, 7.95]	4,643	10.07	[-18.03, 38.17]	-4.90	[-28.93, 19.13]
Year Three	385	38.99	[-19.06, 97.04]	-22.69	[-63.26, 17.88]	4,754	57.06*	[18.50, 95.62]	21.03	[-19.40, 61.45]
Overall	771	0.17	[-45.99, 46.33]	-31.42	[-69.56, 6.72]	8,893	32.92*	[10.23, 55.60]	5.14	[-17.69, 27.97]
Overall Aggregate		\$2,178		-\$394,392			\$4,446,792*		\$694,535	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Pods are unique to the ADK Demonstration; there are no CG beneficiaries in a Pod. “Pod 1/2/3 and all comparisons” means that beneficiaries in each Pod were compared with all PCMH CG beneficiaries and all non-PCMH CG beneficiaries.
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

ADK = Adirondack Medical Home; CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid beneficiaries belonging to these special populations, we found little evidence that the ADK Demonstration slowed the growth of Medicaid expenditures, with the exception of disabled children. Specifically, **Table 4-21** shows that:

- Among **disabled Medicaid children** in ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$5.97 million lower compared with disabled children in non-PCMH practices.
- Among **rural Medicaid children** in ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$3.47 million greater compared with rural children in PCMH practices.
- Among **Medicaid adults with multiple chronic conditions** assigned to ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$5.72 million greater compared with similar adults in PCMH practices.
- Among **Medicaid adults with behavioral health conditions** assigned to ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$2.17 million greater compared with similar adults in non-PCMH practices.
- Among **disabled Medicaid adults** assigned to ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$3.41 million greater compared with similar adults in PCMH practices.
- Among **rural Medicaid adults** assigned to ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$6.13 million greater compared with similar adults in PCMH practices and \$5.13 million greater compared with similar adults in non-PCMH practices.
- Among **non-White Medicaid adults** assigned to ADK Demonstration practices, the growth in *overall aggregate* total Medicaid expenditures was \$2.26 million greater compared with similar adults in PCMH practices.

No statistically significant *overall* impacts of the ADK Demonstration on total Medicaid expenditures were observed among children with behavioral health conditions, children with an asthma diagnosis, non-White children, or children assigned to practices in Pod 1, Pod 2, or Pod 3. No statistically significant *overall* impacts of the ADK Demonstration on total Medicaid expenditures were observed among adults assigned to practices in Pod 1, Pod 2, or Pod 3. There was little evidence that the ADK Demonstration slowed the growth of total Medicaid expenditures among any of the examined special populations of children or adults, with the exception of disabled Medicaid children.

Table 4-22 shows that this lower growth in total Medicaid expenditures for disabled Medicaid children attributed to ADK Demonstration practices was not driven by lower growth in any of the examined expenditure categories.

Table 4-22
New York: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among disabled Medicaid beneficiaries who are children:
Fourteen quarters of the MAPCP Demonstration

Outcome	N	ADK PCMHs vs. CG Non-PCMHs	
		Average estimate	90% confidence interval
Total Medicaid expenditures			
Year One	904	-173.00*	[-337.95, -8.04]
Year Two	964	-155.03*	[-303.25, -6.80]
Year Three	1,079	-180.35*	[-355.16, -5.54]
Overall	1,368	-169.92*	[-328.22, -11.61]
Overall Aggregate		-\$5,972,794*	
Acute-care expenditures			
Year One	904	15.66	[-14.97, 46.28]
Year Two	964	24.81*	[4.03, 45.58]
Year Three	1,079	20.73	[-5.97, 47.43]
Overall	1,368	23.25*	[5.68, 40.83]
Overall Aggregate		\$817,378*	
ER visits not leading to hospitalization (expenditures)			
Year One	904	4.77*	[2.60, 6.95]
Year Two	964	0.66	[-2.30, 3.63]
Year Three	1,079	0.53	[-1.83, 2.89]
Overall	1,368	1.55	[-0.21, 3.32]
Overall Aggregate		\$54,656	
Specialty physician expenditures			
Year One	904	2.64	[-1.55, 6.83]
Year Two	964	1.63	[-4.43, 7.69]
Year Three	1,079	1.88	[-3.63, 7.38]
Overall	1,368	2.18	[-2.18, 6.54]
Overall Aggregate		\$76,557	

(continued)

Table 4-22 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among disabled Medicaid beneficiaries who are children:
Fourteen quarters of the MAPCP Demonstration

Outcome	N	ADK PCMHs vs. CG Non-PCMHs	
		Average estimate	90% confidence interval
Primary care physician expenditures			
Year One	904	8.11*	[4.14, 12.07]
Year Two	964	6.37*	[2.00, 10.75]
Year Three	1,079	0.80	[-3.56, 5.16]
Overall	1,368	4.60*	[0.88, 8.32]
Overall Aggregate		\$161,725*	
All-cause admissions			
Year One	904	0.61	[-0.74, 1.96]
Year Two	964	0.52	[-0.52, 1.56]
Year Three	1,079	0.38	[-0.52, 1.28]
Overall	1,368	0.54	[-0.54, 1.61]
Overall Aggregate		63	
ER visits not leading to a hospitalization			
Year One	904	5.90*	[1.23, 10.57]
Year Two	964	3.41*	[0.36, 6.46]
Year Three	1,079	1.98	[-0.08, 4.04]
Overall	1,368	3.36*	[0.50, 6.23]
Overall Aggregate		394*	

NOTES:

- Acute-care expenditures and ER expenditure measures are PBPM expenditures.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- All-cause admissions and ER visits not leading to a hospitalization are rates per 1,000 beneficiary quarters.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For disabled Medicaid children assigned to ADK Demonstration practices, *Table 4-22* shows that:

- Among disabled Medicaid children assigned to ADK Demonstration, the growth in *overall aggregate* **acute-care expenditures** was approximately \$817,000 greater compared with similar beneficiaries assigned to non-PCMH practices.
- Among disabled Medicaid children assigned to ADK Demonstration, the growth in *overall aggregate* **specialty physician expenditures** was approximately \$162,000 greater compared with similar beneficiaries assigned to non-PCMH practices.
- Among disabled Medicaid children assigned to ADK Demonstration, the *overall aggregate* number of beneficiaries with an **ER visit not leading to a hospitalization growth** increased by 394 compared with similar beneficiaries assigned to non-PCMH practices.
- No statistically significant overall results were observed among disabled Medicaid children assigned to ADK Demonstration practices for the measures of **expenditures for ER visits not leading to a hospitalization, specialty physician expenditures, and ER visits not leading to hospitalization** compared with similar beneficiaries assigned to non-PCMH practices.

The reduction in growth of Medicaid expenditures for disabled children assigned to ADK Demonstration practices was not explained by the examined expenditure measures.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group is defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the chronic conditions and the CMS-HCC risk category can be found in *Appendix D*. Over 14 quarters of the demonstration, 22 percent of MAPCP Demonstration Medicare beneficiaries (demonstration and CGs) fit this profile in New York. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into the MAPCP Demonstration (or CG). Over the course of the demonstration, 24 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile. Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

The ADK Demonstration was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the ADK Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 4-23** reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 4-24** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 4-25** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See **Section 4.3.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data.

Table 4-23
New York: Comparison of average MAPCP Demonstration effect estimates for process of care indicators among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 1,490)	1.15	[-1.70, 4.00]	-0.63	[-3.62, 2.36]
Year Two (N = 1,112)	-0.15	[-2.96, 2.67]	-5.03*	[-8.71, -1.36]
Year Three (N = 790)	1.47	[-1.55, 4.49]	1.83	[-4.10, 7.75]
Overall (N = 1,577)	0.80	[-1.55, 3.15]	-1.50	[-4.81, 1.80]
Retinal eye examination				
Year One (N = 1,490)	1.07	[-1.68, 3.81]	-1.52	[-7.06, 4.02]
Year Two (N = 1,112)	1.48	[-1.96, 4.92]	12.57*	[5.77, 19.37]
Year Three (N = 790)	6.13*	[0.49, 11.76]	9.66*	[0.98, 18.35]
Overall (N = 1,577)	2.38	[-0.37, 5.13]	5.70*	[0.89, 10.51]
LDL-C screening				
Year One (N = 1,490)	1.11	[-2.41, 4.62]	0.23	[-3.75, 4.21]
Year Two (N = 1,112)	-1.02	[-4.63, 2.60]	3.44	[-6.44, 13.31]
Year Three (N = 790)	2.51	[-1.49, 6.51]	-0.42	[-8.66, 7.82]
Overall (N = 1,577)	0.74	[-2.34, 3.81]	1.13	[-4.75, 7.01]
Medical attention for nephropathy				
Year One (N = 1,490)	-4.21	[-8.44, 0.03]	1.55	[-3.44, 6.54]
Year Two (N = 1,112)	-4.03	[-9.81, 1.74]	3.69	[-3.13, 10.51]
Year Three (N = 790)	-2.51	[-8.35, 3.32]	0.87	[-7.05, 8.79]
Overall (N = 1,577)	-3.76	[-8.10, 0.59]	2.09	[-2.61, 6.80]

(continued)

Table 4-23 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received all 4 diabetes tests				
Year One (N = 1,490)	1.33	[-2.70, 5.36]	-0.77	[-6.21, 4.67]
Year Two (N = 1,112)	1.48	[-4.12, 7.08]	8.26	[-1.18, 17.71]
Year Three (N = 790)	4.17	[-1.81, 10.14]	-0.02	[-9.54, 9.50]
Overall (N = 1,577)	2.04	[-1.93, 6.01]	2.36	[-3.15, 7.88]
Received none of the 4 diabetes tests				
Year One (N = 1,490)	-0.02	[-1.26, 1.22]	0.58	[-0.66, 1.82]
Year Two (N = 1,112)	0.99	[-0.41, 2.40]	1.74*	[0.27, 3.21]
Year Three (N = 790)	-0.17	[-1.83, 1.49]	-1.16	[-3.87, 1.55]
Overall (N = 1,577)	0.28	[-0.81, 1.37]	0.55	[-0.52, 1.63]
Total lipid panel				
Year One (N = 3,235)	1.38	[-1.60, 4.36]	-0.82	[-4.95, 3.32]
Year Two (N = 2,409)	-0.40	[-4.21, 3.41]	-2.77	[-6.44, 0.91]
Year Three (N = 1,683)	4.41	[-0.48, 9.30]	-1.28	[-6.32, 3.76]
Overall (N = 3,687)	1.49	[-1.78, 4.77]	-1.56	[-4.88, 1.75]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.

ADK = Adirondack Medical Home; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found no evidence that the ADK Demonstration impacted process of care measures, with the exception of retinal eye examinations. Specifically, **Table 4-23** shows that:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving a **retinal eye examination** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, medical attention for nephropathy, or total lipid panels.

Table 4-24
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing					
Year One	663	-1.73	[-5.09, 1.64]	6.46	[-1.05, 13.97]
Year Two	433	-0.42	[-3.55, 2.71]	-2.58	[-8.27, 3.12]
Year Three	295	3.09	[-3.38, 9.56]	-1.30	[-8.18, 5.57]
Overall	746	-0.30	[-2.26, 1.67]	2.00	[-2.13, 6.13]
Retinal eye examination					
Year One	663	-11.18*	[-21.92, -0.45]	-2.10	[-8.06, 3.87]
Year Two	433	-11.95	[-26.08, 2.18]	-8.76	[-19.28, 1.77]
Year Three	295	-16.28	[-37.22, 4.66]	-16.02	[-39.51, 7.47]
Overall	746	-12.50	[-25.75, 0.75]	-7.12	[-15.38, 1.14]
LDL-C screening					
Year One	663	-0.61	[-7.05, 5.84]	-2.18	[-7.51, 3.16]
Year Two	433	3.04	[-5.94, 12.03]	2.73	[-3.59, 9.05]
Year Three	295	5.08	[-3.17, 13.32]	-3.42	[-11.93, 5.09]
Overall	746	1.74	[-4.46, 7.93]	-0.91	[-4.69, 2.87]
Medical attention for nephropathy					
Year One	663	0.59	[-2.49, 3.67]	0.47	[-1.13, 2.07]
Year Two	433	-0.43	[-3.29, 2.42]	-0.91	[-2.80, 0.98]
Year Three	295	2.95	[-3.87, 9.77]	0.11	[-1.46, 1.68]
Overall	746	0.77	[-1.95, 3.50]	-0.04	[-1.08, 1.01]
Received all 4 diabetes tests					
Year One	663	-5.14	[-13.41, 3.13]	0.48	[-4.80, 5.77]
Year Two	433	-6.01	[-14.69, 2.68]	-0.09	[-8.94, 8.75]
Year Three	295	-11.26	[-25.45, 2.93]	-14.83	[-35.16, 5.51]
Overall	746	-6.71	[-15.24, 1.82]	-2.94	[-9.00, 3.11]
Received none of the 4 diabetes tests					
Year One	663	0.58	[-1.61, 2.77]	-0.29	[-1.73, 1.14]
Year Two	433	-0.37	[-1.76, 1.02]	0.12	[-0.22, 0.46]
Year Three	295	-1.54	[-6.21, 3.14]	0.18	[-0.30, 0.65]
Overall	746	-0.16	[-1.01, 0.68]	-0.07	[-0.71, 0.58]
Breast cancer screening					
Year One	1,117	3.14	[-2.09, 8.36]	2.38	[-1.75, 6.52]
Year Two	797	0.25	[-6.40, 6.90]	-1.53	[-6.24, 3.19]
Year Three	562	6.83	[-1.37, 15.03]	2.22	[-3.41, 7.85]
Overall	1,212	3.05	[-1.25, 7.34]	1.09	[-2.12, 4.29]

(continued)

Table 4-24 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Cervical cancer screening					
Year One	2,046	3.98*	[0.47, 7.50]	5.05*	[1.43, 8.66]
Year Two	1,454	3.80	[-0.30, 7.90]	0.25	[-3.60, 4.09]
Year Three	953	7.94*	[3.80, 12.07]	2.63	[-3.57, 8.83]
Overall	2,198	4.77*	[2.00, 7.55]	2.96*	[0.03, 5.89]
Appropriate use of antidepressant medication management: 12 weeks					
Year One	626	-6.17	[-14.10, 1.76]	-1.61	[-7.31, 4.09]
Year Two	412	-3.49	[-10.97, 3.98]	-10.21*	[-16.55, -3.88]
Year Three	262	1.48	[-8.61, 11.57]	5.34	[-1.94, 12.62]
Overall	978	-3.78	[-10.89, 3.33]	-2.94	[-7.20, 1.33]
Appropriate use of antidepressant medication management: 6 months					
Year One	626	-1.42	[-5.48, 2.65]	-2.17	[-5.29, 0.95]
Year Two	412	0.54	[-2.56, 3.65]	-5.64*	[-10.04, -1.24]
Year Three	262	-1.25	[-5.81, 3.30]	0.21	[-2.32, 2.74]
Overall	978	-0.76	[-4.22, 2.69]	-2.79*	[-5.56, -0.02]
Appropriate use of asthma medications					
Year One	333	4.33	[-1.57, 10.22]	3.89	[-1.10, 8.87]
Year Two	235	4.40	[-4.54, 13.34]	-4.57	[-18.38, 9.25]
Year Three	144	1.09	[-9.97, 12.15]	-5.49	[-19.32, 8.34]
Overall	442	3.70	[-1.83, 9.23]	-0.80	[-6.75, 5.15]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator.
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

ADK = Adirondack Medical Home; CG = comparison group; LDL-C = low-density lipoprotein cholesterol;
MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found some evidence that the ADK Demonstration increased cervical cancer screenings yet decreased appropriate antidepressant medication management, though its impact on antidepressant medication management was not consistent across both CGs. Specifically, **Table 4-24** shows that:

- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **cervical cancer screenings** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH comparison practices.
- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **appropriate antidepressant medication management at 6 months** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, retinal eye examinations, medical attention for nephropathy, breast cancer screening, appropriate antidepressant medication management at 12 weeks, or the appropriate use of asthma medications.

Table 4-25
New York: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 5,336)	1.16	[-2.02, 4.33]	2.34	[-0.43, 5.11]
Year Two (N = 5,265)	-0.69	[-3.91, 2.54]	-4.98	[-10.19, 0.22]
Year Three (N = 4,744)	-1.41	[-5.27, 2.45]	1.24	[-3.58, 6.05]
Overall (N = 6,408)	0.38	[-2.19, 2.95]	0.34	[-2.82, 3.49]
PQI admissions—overall ²				
Year One (N = 5,336)	-3.48	[-7.82, 0.85]	-7.48*	[-14.83, -0.14]
Year Two (N = 5,265)	-1.65	[-7.13, 3.83]	-2.53	[-9.04, 3.98]
Year Three (N = 4,744)	-3.85	[-9.09, 1.38]	-2.43	[-10.41, 5.55]
Overall (N = 6,408)	-4.02*	[-7.48, -0.57]	-4.16	[-8.54, 0.23]
PQI admissions—acute ³				
Year One (N = 5,336)	-2.70	[-5.51, 0.11]	-2.63	[-6.17, 0.90]
Year Two (N = 5,265)	-1.03	[-3.79, 1.73]	-4.34	[-8.87, 0.18]
Year Three (N = 4,744)	0.50	[-2.07, 3.07]	-0.48	[-3.74, 2.77]
Overall (N = 6,408)	-1.56	[-3.56, 0.43]	-2.35	[-4.78, 0.09]

(continued)

Table 4-25 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 5,336)	-0.76	[-4.05, 2.54]	-4.43	[-10.63, 1.78]
Year Two (N = 5,265)	-0.70	[-4.74, 3.35]	1.94	[-2.21, 6.09]
Year Three (N = 4,744)	-4.62*	[-9.17, -0.06]	-2.30	[-8.75, 4.15]
Overall (N = 6,408)	-2.54	[-5.29, 0.21]	-1.72	[-5.13, 1.70]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

ADK = Adirondack Medical Home; CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we find some evidence that the ADK Demonstration decreased the rate of PQI admissions, although the impact was inconsistent across both CGs. Specifically, **Table 4-25** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **overall PQI admissions** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* impacts were observed in the rates of avoidable catastrophic events, chronic PQI admissions, or acute PQI admissions.

The ADK Demonstration is expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the ADK Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 4-26** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COC Index.
- **Table 4-27** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 4.4.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data.

Table 4-26
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 5,336)	8.83	[-85.43, 103.10]	7.03	[-127.54, 141.60]
Year Two (N = 5,265)	-17.87	[-118.58, 82.83]	3.47	[-129.16, 136.10]
Year Three (N = 4,744)	-23.29	[-129.38, 82.81]	-12.92	[-139.50, 113.65]
Overall (N = 6,408)	-15.46	[-105.76, 74.83]	-0.64	[-124.74, 123.47]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 5,336)	-18.72	[-74.02, 36.59]	1.90	[-71.15, 74.94]
Year Two (N = 5,265)	-39.39	[-120.82, 42.04]	-44.80	[-148.69, 59.10]
Year Three (N = 4,744)	-22.36	[-109.03, 64.31]	17.90	[-74.52, 110.31]
Overall (N = 6,408)	-31.33	[-97.42, 34.76]	-14.70	[-92.43, 63.03]

(continued)

Table 4-26 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries
with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 5,336)	40.76*	[16.83, 64.69]	30.88*	[5.95, 55.81]
Year Two (N = 5,265)	22.84	[-0.12, 45.80]	13.98	[-8.25, 36.21]
Year Three (N = 4,744)	21.68*	[1.17, 42.18]	12.47	[-16.12, 41.05]
Overall (N = 6,408)	28.31*	[8.40, 48.21]	19.23*	[0.49, 37.96]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 4,861)				
1st quintile	1.83	[-0.83, 4.49]	0.42	[-5.35, 6.18]
5th quintile	-0.82	[-1.97, 0.33]	-0.19	[-2.89, 2.50]
Year Two (N = 3,774)				
1st quintile	2.21	[-1.05, 5.47]	-0.87	[-7.69, 5.95]
5th quintile	-1.01	[-2.47, 0.45]	0.39	[-2.66, 3.44]
Year Three (N = 2,769)				
1st quintile	4.28*	[0.10, 8.47]	2.81	[-2.88, 8.50]
5th quintile	-1.78	[-3.57, 0.02]	-1.21	[-3.75, 1.33]
Overall (N = 5,210)				
1st quintile	2.55	[-0.22, 5.32]	0.57	[-5.08, 6.23]
5th quintile	-1.11	[-2.33, 0.10]	-0.25	[-2.82, 2.32]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,463)	2.68	[-44.73, 50.09]	-7.71	[-72.47, 57.06]
Year Two (N = 1,285)	-34.80	[-88.43, 18.82]	-3.99	[-75.70, 67.72]
Year Three (N = 1,186)	-10.05	[-92.66, 72.56]	25.64	[-81.79, 133.06]
Overall (N = 2,913)	-13.83	[-59.41, 31.76]	0.12	[-60.23, 60.46]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,803)	-24.14	[-59.03, 10.75]	-34.32	[-71.85, 3.21]
Year Two (N = 1,607)	-24.73	[-59.83, 10.37]	2.02	[-50.06, 54.09]
Year Three (N = 1,445)	-46.60*	[-84.33, -8.88]	-27.62	[-94.57, 39.33]
Overall (N = 3,480)	-25.22	[-52.90, 2.45]	-13.42	[-41.86, 15.01]

(continued)

Table 4-26 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries
with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better COC)				
Year One (N = 6,147)				
1st quintile	4.49*	[2.54, 6.43]	2.54	[-0.01, 5.09]
5th quintile	-4.40*	[-6.13, -2.67]	-2.29	[-4.63, 0.05]
Year Two (N = 4,904)				
1st quintile	4.72*	[2.56, 6.88]	4.27*	[1.90, 6.65]
5th quintile	-4.24*	[-6.16, -2.31]	-3.78*	[-5.93, -1.62]
Year Three (N = 3,627)				
1st quintile	6.04*	[3.88, 8.20]	4.62*	[2.04, 7.20]
5th quintile	-4.95*	[-6.87, -3.03]	-3.62*	[-5.82, -1.42]
Overall (N = 6,261)				
1st quintile	4.95*	[3.24, 6.66]	3.63*	[1.54, 5.72]
5th quintile	-4.48*	[-6.00, -2.97]	-3.12*	[-5.00, -1.24]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that the ADK Demonstration impacted the access to care and care coordination measures, with the exception of surgical specialist visits and continuity of care. Specifically, **Table 4-26** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **surgical specialist visits** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, *overall continuity of care*, as measured by concentration of visits, decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices. Specifically, the ADK Demonstration increased the *overall* likelihood that a demonstration beneficiary's COC Index was in the lowest quintile and decreased the *overall* likelihood that the COC Index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, whereas the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, primary care visits as a percentage of total visits, 14-day follow-up visits following discharge, and 30-day unplanned readmissions.

Table 4-27
New York: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries
with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	4,310	11.72*	[7.47, 15.96]	10.37*	[6.54, 14.21]
Year Two	4,095	13.77*	[9.75, 17.79]	13.98*	[9.15, 18.81]
Year Three	4,491	5.05*	[0.37, 9.73]	6.00*	[0.60, 11.39]
Overall	6,980	9.64*	[5.77, 13.52]	9.50*	[4.93, 14.07]
Medical specialist visits					
Year One	4,310	-2.06	[-5.16, 1.04]	-1.50	[-3.36, 0.35]
Year Two	4,095	-4.12*	[-7.78, -0.45]	-2.54*	[-4.60, -0.48]
Year Three	4,491	-3.25	[-6.82, 0.32]	-1.18	[-4.00, 1.64]
Overall	6,980	-3.01*	[-5.93, -0.08]	-1.53	[-3.21, 0.14]
Surgical specialist visits					
Year One	4,310	1.14	[-0.38, 2.66]	-0.75	[-2.55, 1.05]
Year Two	4,095	-1.94	[-4.37, 0.48]	-2.28*	[-4.47, -0.08]
Year Three	4,491	-1.74	[-3.59, 0.11]	-1.36	[-2.83, 0.12]
Overall	6,980	-1.04	[-2.35, 0.28]	-1.61*	[-3.09, -0.14]
Primary care visits as percentage of total visits (% PC)					
Year One					
% PC < 70%	2,443	-8.12*	[-11.39, -4.84]	-9.63*	[-12.86, -6.41]
70% ≤ % PC < 100%		2.85*	[1.86, 3.84]	1.28	[-0.68, 3.24]
% PC = 100%		5.26*	[2.54, 7.98]	8.35*	[5.45, 11.25]
Year Two					
% PC < 70%	1,619	-15.46*	[-22.73, -8.18]	-10.68*	[-17.87, -3.48]
70% ≤ % PC < 100%		3.05	[-0.19, 6.28]	-1.70	[-4.54, 1.14]
% PC = 100%		12.41*	[5.99, 18.84]	12.37*	[4.51, 20.24]
Year Three					
% PC < 70%	973	-13.99*	[-24.83, -3.15]	-5.15	[-17.84, 7.53]
70% ≤ % PC < 100%		2.68	[-0.88, 6.23]	-1.24	[-3.72, 1.23]
% PC = 100%		11.32*	[2.25, 20.38]	6.40	[-8.23, 21.02]
Overall					
% PC < 70%	3,139	-11.61*	[-16.67, -6.55]	-9.10*	[-14.48, -3.73]
70% ≤ % PC < 100%		2.88*	[0.93, 4.83]	-0.16	[-2.14, 1.81]
% PC = 100%		8.73*	[4.21, 13.26]	9.27*	[3.78, 14.76]

(continued)

Table 4-27 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions					
Year One	3,978	0.15	[-0.25, 0.55]	0.30	[-0.14, 0.73]
Year Two	3,499	0.04	[-0.17, 0.24]	0.23	[-0.08, 0.54]
Year Three	4,252	-0.08	[-0.39, 0.24]	0.03	[-0.24, 0.30]
Overall	6,176	0.01	[-0.19, 0.22]	0.18	[-0.10, 0.45]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category. A *positive* value corresponds to an increase in the likelihood of observing a value in the category.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

ADK = Adirondack Medical Home; CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults with multiple chronic conditions, we found evidence that the ADK Demonstration impacted many of the access to care and care coordination measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 4-27** shows that:

- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **primary care visits** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **medical specialist visits** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **surgical specialist visits** decreased among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, **primary care visits as a share of total visits** increased among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices. Specifically, the ADK Demonstration was associated with a decrease in the *overall* likelihood that a demonstration beneficiary had fewer than 70 percent of all their visits in primary care settings and an increase in the *overall* likelihood that a demonstration beneficiary had 100 percent of all their visits in primary care settings compared with beneficiaries assigned to PCMH or non-PCMH practices.

No statistically significant *overall* impacts were observed for the 30-day unplanned readmissions measure.

The ADK Demonstration is expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the ADK Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 4-28** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 4-29** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.

- **Table 4-30** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 4-31** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 4.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data.

Table 4-28
New York: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 5,336)	8.99	[-81.33, 99.30]	-54.89	[-153.76, 43.98]
Year Two (N = 5,265)	6.75	[-83.24, 96.74]	-62.52	[-179.10, 54.06]
Year Three (N = 4,744)	24.41	[-81.61, 130.42]	30.23	[-90.24, 150.70]
Overall (N = 6,408)	13.90	[-56.59, 84.39]	-3.41	[-77.92, 71.11]
Overall Aggregate	\$2,569,747		-\$629,724	
Acute care				
Year One (N = 5,336)	-22.03	[-76.07, 32.00]	2.24	[-57.04, 61.51]
Year Two (N = 5,265)	-61.06	[-124.01, 1.88]	-60.44	[-143.73, 22.85]
Year Three (N = 4,744)	-57.69	[-116.62, 1.24]	7.85	[-61.63, 77.34]
Overall (N = 6,408)	-49.76*	[-91.38, -8.15]	-3.25	[-47.55, 41.05]
Overall Aggregate	-\$9,201,378*		-\$600,493	
Post-acute care				
Year One (N = 5,336)	13.80	[-10.34, 37.94]	-7.27	[-42.92, 28.37]
Year Two (N = 5,265)	6.92	[-21.72, 35.55]	-14.72	[-43.79, 14.35]
Year Three (N = 4,744)	11.44	[-19.33, 42.21]	-26.75	[-66.37, 12.88]
Overall (N = 6,408)	11.82	[-10.42, 34.05]	-10.11	[-32.75, 12.53]
Overall Aggregate	\$2,185,117		-\$1,869,377	
ER visits not leading to hospitalization				
Year One (N = 5,336)	10.90*	[5.68, 16.12]	3.48	[-4.67, 11.62]
Year Two (N = 5,265)	3.61	[-2.87, 10.08]	1.61	[-8.42, 11.65]
Year Three (N = 4,744)	2.13	[-5.48, 9.74]	17.48*	[9.72, 25.24]
Overall (N = 6,408)	4.55	[-0.66, 9.76]	8.63*	[2.79, 14.47]
Overall Aggregate	\$840,820		\$1,595,659*	
Outpatient				
Year One (N = 5,336)	40.22*	[23.02, 57.41]	17.33	[-17.69, 52.36]
Year Two (N = 5,265)	51.72*	[36.47, 66.97]	18.16	[-10.39, 46.72]
Year Three (N = 4,744)	46.31*	[30.23, 62.39]	26.33	[-15.70, 68.37]
Overall (N = 6,408)	45.35*	[33.64, 57.56]	24.76	[-0.79, 50.30]
Overall Aggregate	\$8,384,696*		\$4,577,227	

(continued)

Table 4-28 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Specialty physician				
Year One (N = 5,336)	-11.50*	[-20.94, -2.06]	-15.25*	[-27.68, -2.82]
Year Two (N = 5,265)	-7.83	[-20.36, 4.69]	1.05	[-10.47, 12.58]
Year Three (N = 4,744)	-5.33	[-18.86, 8.20]	11.60	[-2.44, 25.64]
Overall (N = 6,408)	-8.81	[-17.81, 0.18]	-0.36	[-9.80, 9.08]
Overall Aggregate	-\$1,629,772		-\$65,780	
Primary care physician				
Year One (N = 5,336)	-11.05*	[-21.32, -0.77]	-2.14	[-8.78, 4.50]
Year Two (N = 5,265)	-11.88*	[-19.40, -4.36]	-5.65	[-11.41, 0.12]
Year Three (N = 4,744)	-0.64	[-6.75, 5.47]	-1.98	[-7.90, 3.93]
Overall (N = 6,408)	-6.72*	[-11.69, -1.74]	-3.01	[-7.84, 1.83]
Overall Aggregate	-\$1,241,961*		-\$556,008	
Home health				
Year One (N = 5,336)	-6.21	[-14.46, 2.05]	-12.95*	[-25.42, -0.48]
Year Two (N = 5,265)	4.89	[-3.67, 13.46]	0.01	[-10.52, 10.55]
Year Three (N = 4,744)	7.26	[-3.92, 18.44]	9.12	[-2.37, 20.61]
Overall (N = 6,408)	3.06	[-5.48, 11.61]	-0.06	[-10.03, 9.91]
Overall Aggregate	\$566,351		-\$10,748	
Other non-facility				
Year One (N = 5,336)	-4.05	[-11.18, 3.08]	-15.01*	[-28.69, -1.32]
Year Two (N = 5,265)	3.99	[-4.86, 12.83]	-2.42	[-15.83, 10.98]
Year Three (N = 4,744)	2.71	[-10.99, 16.42]	-8.51	[-48.72, 31.70]
Overall (N = 6,408)	2.32	[-5.20, 9.85]	-12.35	[-40.41, 15.72]
Overall Aggregate	\$429,559		-\$2,282,638	
Laboratory				
Year One (N = 5,336)	-2.99*	[-4.56, -1.43]	0.14	[-1.69, 1.98]
Year Two (N = 5,265)	-2.77*	[-4.86, -0.69]	0.01	[-1.77, 1.79]
Year Three (N = 4,744)	-0.24	[-1.79, 1.31]	-0.52	[-3.24, 2.20]
Overall (N = 6,408)	-1.89*	[-3.39, -0.39]	-0.33	[-2.38, 1.71]
Overall Aggregate	-\$350,320*		-\$61,601	
Imaging				
Year One (N = 5,336)	-2.46*	[-4.73, -0.20]	-1.81	[-3.83, 0.20]
Year Two (N = 5,265)	-4.09*	[-6.87, -1.31]	-3.99*	[-6.62, -1.37]
Year Three (N = 4,744)	-1.59	[-4.04, 0.87]	-1.00	[-3.66, 1.67]
Overall (N = 6,408)	-3.13*	[-5.46, -0.81]	-2.09*	[-4.09, -0.09]
Overall Aggregate	-\$579,542*		-\$386,631*	

(continued)

Table 4-28 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other facility				
Year One (N = 5,336)	0.19	[-0.24, 0.61]	-0.08	[-0.16, 0.01]
Year Two (N = 5,265)	0.18	[-0.24, 0.60]	-0.07	[-0.16, 0.01]
Year Three (N = 4,744)	0.19	[-0.25, 0.63]	-0.07	[-0.15, 0.01]
Overall (N = 6,408)	0.19	[-0.24, 0.62]	-0.07	[-0.16, 0.01]
Overall Aggregate	\$35,040		-\$13,516	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.
- Other facility expenditures are close to \$0 in New York.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that the ADK Demonstration changed *overall* expenditures, although there were inconsistencies in the statistical significant across CGs. Specifically, **Table 4-28** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, there was no statistically significant difference in the *overall aggregate* growth of **total Medicare expenditures** among ADK Demonstration beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **acute-care expenditures** was \$9.2 million lower among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **laboratory expenditures** was approximately \$350,000 lower among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **expenditures for ER visits not leading to hospitalization** was \$1.6 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **outpatient expenditures** was \$8.4 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **primary care physician expenditures** was \$1.2 million lower among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **imaging expenditures** was approximately \$580,000 lower among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices and \$386,631 lower compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for total, post-acute care, specialty physician, home health, other non-facility, laboratory, and other facility expenditures.

Table 4-29
New York: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	4,310	58.05*	[4.60, 111.49]	11.75	[-37.74, 61.25]
Year Two	4,095	36.70	[-13.52, 86.92]	26.60	[-25.69, 78.89]
Year Three	4,491	45.80	[-3.49, 95.10]	21.34	[-47.82, 90.50]
Overall	6,980	42.90*	[3.58, 82.23]	12.35	[-31.77, 56.46]
Overall Aggregate		\$5,716,355*		\$1,645,161	
Acute care					
Year One	4,310	6.83	[-13.16, 26.81]	22.05	[-2.59, 46.70]
Year Two	4,095	-6.37	[-24.38, 11.63]	25.61*	[7.16, 44.06]
Year Three	4,491	-5.69	[-26.25, 14.87]	22.89*	[3.33, 42.45]
Overall	6,980	-3.20	[-15.59, 9.18]	19.92*	[5.53, 34.32]
Overall Aggregate		-\$427,017		\$2,654,585*	
ER visits not leading to hospitalization					
Year One	4,310	3.67	[-2.48, 9.82]	1.66	[-4.03, 7.36]
Year Two	4,095	-2.55	[-6.49, 1.39]	2.49	[-0.94, 5.92]
Year Three	4,491	-6.00*	[-9.55, -2.44]	-3.07	[-6.59, 0.46]
Overall	6,980	-2.39	[-5.91, 1.14]	-1.12	[-3.88, 1.65]
Overall Aggregate		-\$318,079		-\$148,836	
Specialty physician					
Year One	4,310	10.65*	[6.04, 15.25]	8.67*	[3.36, 13.97]
Year Two	4,095	-1.34	[-7.42, 4.74]	3.06	[-2.25, 8.37]
Year Three	4,491	-2.74	[-10.14, 4.66]	2.01	[-3.93, 7.94]
Overall	6,980	1.39	[-3.53, 6.30]	3.76	[-0.83, 8.34]
Overall Aggregate		\$184,579		\$500,886	
Primary care physician					
Year One	4,310	11.90*	[6.43, 17.38]	21.33*	[14.71, 27.96]
Year Two	4,095	17.26*	[10.83, 23.68]	24.49*	[15.53, 33.45]
Year Three	4,491	9.87*	[2.98, 16.76]	12.69*	[1.16, 24.22]
Overall	6,980	12.46*	[6.79, 18.14]	18.48*	[10.00, 26.96]
Overall Aggregate		\$1,660,327*		\$2,461,969*	

(continued)

Table 4-29 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Prescription drugs					
Year One	4,310	15.62	[-2.13, 33.37]	-20.61	[-42.37, 1.14]
Year Two	4,095	26.02*	[7.57, 44.46]	4.70	[-19.01, 28.41]
Year Three	4,491	38.14*	[16.47, 59.81]	-8.41	[-37.03, 20.20]
Overall	6,980	25.46*	[8.56, 42.36]	-10.69	[-33.04, 11.67]
Overall Aggregate		\$3,391,744*		-\$1,423,751	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Over the course of the ADK Demonstration, New York rolled out managed care in the Adirondack region. As a result, long-term care expenditures significantly decreased over the course of the ADK Demonstration. The decrease was more significant among beneficiaries in the ADK Demonstration because fewer beneficiaries were enrolled in managed care at the beginning of the ADK Demonstration relative to the beneficiaries in PCMH and non-PCMH practices. Therefore, differences in the overall change in long-term care expenditures could not be attributed solely to the ADK Demonstration, and results are not reported here.
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

ADK = Adirondack Medical Home CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found *overall* greater growth in several expenditure categories, including total Medicaid expenditures, for the ADK Demonstration beneficiaries, although there were inconsistencies in the statistical significant across CGs. Specifically, **Table 4-29** shows that:

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate total Medicaid expenditures* was \$5.7 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **acute-care expenditures** was \$2.7 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **primary care expenditures** was \$1.7 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices and \$2,461,969 greater compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **prescription drug expenditures** was \$3.4 million greater among ADK Demonstration beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for specialty physician and ER visits not leading to a hospitalization expenditures.

Table 4-30
New York: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 5,336)	-12.69*	[-25.02, -0.35]	-2.43	[-18.81, 13.96]
Year Two (N = 5,265)	-22.06*	[-34.93, -9.18]	-13.63	[-30.21, 2.95]
Year Three (N = 4,744)	-17.83*	[-32.52, -3.14]	-3.66	[-20.66, 13.34]
Overall (N = 6,408)	-17.27*	[-27.00, -7.54]	-3.23	[-15.68, 9.23]
Overall Aggregate	-1,064*		-199	
ER visits not leading to hospitalization				
Year One (N = 5,336)	15.01	[-0.94, 30.96]	12.45	[-1.68, 26.58]
Year Two (N = 5,265)	0.52	[-16.13, 17.17]	24.22*	[2.06, 46.37]
Year Three (N = 4,744)	-19.23	[-44.28, 5.83]	43.12*	[11.92, 74.31]
Overall (N = 6,408)	-5.07	[-20.92, 10.77]	27.07*	[8.01, 46.13]
Overall Aggregate	-313		1,669*	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that the ADK Demonstration changed the utilization, with some exceptions. Specifically, **Table 4-30** shows that:

- The *overall aggregate* number of **all-cause admissions** decreased by 1,064 among Medicare beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased 1,669 among Medicare beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to non-PCMH practices.

Table 4-31

**New York: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration**

Outcome	Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	4,310	0.09	[-0.73, 0.91]	-0.08	[-0.67, 0.52]
Year Two	4,095	-0.84	[-1.84, 0.16]	-0.69	[-1.56, 0.18]
Year Three	4,491	-0.58	[-1.48, 0.32]	-0.31	[-1.00, 0.39]
Overall	6,980	-0.42	[-1.03, 0.18]	-0.43	[-1.09, 0.23]
Overall Aggregate		-188		-191	
ER visits not leading to hospitalization					
Year One	4,310	3.10*	[0.78, 5.42]	1.16	[-1.21, 3.53]
Year Two	4,095	1.76	[-0.07, 3.59]	2.63*	[1.34, 3.92]
Year Three	4,491	1.21	[-0.27, 2.69]	0.70	[-0.63, 2.03]
Overall	6,980	1.73*	[0.33, 3.13]	0.90	[-0.19, 1.99]
Overall Aggregate		768*		398	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique ADK Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found little evidence that the ADK Demonstration changed the utilization, with the exception of ER visits leading to hospitalization. Specifically, **Table 4-31** shows that:

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 768 among Medicaid child beneficiaries assigned to the ADK Demonstration compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for all-cause admissions.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Within the medical home, significant care management and coordination resources may be required to meet the needs of these patients. There were no targeted interventions implemented in the demonstration to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse conditions. These individuals, however, are expected to benefit from initiatives to improve access to, coordination of, and continuity of care with primary care and behavioral health care providers. The ADK Demonstration was expected to increase care coordination between PCPs and behavioral health care providers for beneficiaries with mental illnesses and substance abuse disorders. Improved access and care coordination could increase use of outpatient behavioral health care services and primary care visits. In turn, more appropriate use of outpatient care could lead to decreased rates of hospitalization and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both behavioral and nonbehavioral health and service use, we further explore in this subsection the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim and/or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before their participation in the demonstration. Using this criterion, 14 percent of the Medicare study sample (demonstration and CG beneficiaries), 6 percent of the adult Medicaid study sample, and 2 percent of the pediatric Medicaid study sample were identified as having a behavioral health condition.

- **Table 4-32** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.

- **Table 4-33** reports on changes in total Medicaid expenditures, expenditures for acute hospitalizations, expenditures for ER visits, and total Medicaid expenditures for which the primary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 4-34** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 4-35** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 4.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in New York, the overall estimate for these measures includes all 14 quarters of data.

Table 4-32
New York: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 3,253)	13.88	[-60.11, 87.87]	-52.66	[-154.73, 49.41]
Year Two (N = 3,352)	-50.25	[-129.03, 28.54]	-12.41	[-111.65, 86.83]
Year Three (N = 3,294)	-6.90	[-104.03, 90.23]	91.63	[-33.67, 216.94]
Overall (N = 4,178)	-4.02	[-70.40, 62.36]	30.70	[-52.36, 113.76]
Overall Aggregate	-\$483,370		\$3,690,715	
Acute care				
Year One (N = 3,253)	-12.62	[-54.48, 29.24]	-1.36	[-60.40, 57.67]
Year Two (N = 3,352)	-71.52*	[-117.75, -25.29]	-21.87	[-83.06, 39.32]
Year Three (N = 3,294)	-27.35	[-79.63, 24.94]	12.82	[-45.39, 71.02]
Overall (N = 4,178)	-32.72*	[-63.87, -1.57]	7.91	[-32.43, 48.25]
Overall Aggregate	-\$3,933,516*		\$950,888	
ER visits not leading to hospitalization				
Year One (N = 3,253)	8.12*	[1.08, 15.17]	-5.19	[-19.28, 8.91]
Year Two (N = 3,352)	0.14	[-6.29, 6.56]	-4.75	[-17.32, 7.82]
Year Three (N = 3,294)	-6.04	[-15.12, 3.05]	10.04*	[0.03, 20.05]
Overall (N = 4,178)	0.33	[-5.49, 6.15]	2.27	[-6.18, 10.72]
Overall Aggregate	\$39,579		\$272,819	

(continued)

Table 4-32 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 3,253)	7.99	[-2.60, 18.57]	2.47	[-12.09, 17.03]
Year Two (N = 3,352)	6.61	[-5.31, 18.52]	2.00	[-15.31, 19.31]
Year Three (N = 3,294)	9.50	[-2.95, 21.94]	19.67	[-0.13, 39.47]
Overall (N = 4,178)	10.66*	[1.82, 19.50]	8.29	[-5.53, 22.11]
Overall Aggregate	\$1,281,580*		\$996,549	
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 3,253)	8.31	[-30.84, 47.45]	-11.18	[-64.97, 42.61]
Year Two (N = 3,352)	-41.67	[-90.17, 6.83]	-39.43	[-95.54, 16.67]
Year Three (N = 3,294)	-21.84	[-61.95, 18.27]	-5.22	[-54.97, 44.53]
Overall (N = 4,178)	-12.35	[-36.34, 11.64]	-9.71	[-44.25, 24.83]
Overall Aggregate	-\$1,485,174		-\$1,167,454	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

ADK = Adirondack Medical Home Demonstration; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with behavioral health conditions, there was little evidence that the ADK Demonstration had a significant impact on the Medicare expenditure variables examined, with the exception of acute-care expenditures. However, the result was inconsistent across CGs. In particular, **Table 4-32** shows that:

- Among Medicare beneficiaries with behavioral health conditions in ADK Demonstration practices, the growth in *overall aggregate acute-care expenditures* was \$3.9 million lower compared with similar beneficiaries in PCMH practices.

- Among Medicare beneficiaries with behavioral health conditions in ADK Demonstration practices, the growth in *overall aggregate expenditures for total services with a principal diagnosis of a behavioral health condition* was \$1.3 million greater compared with similar beneficiaries in PCMH practices.

No statistically significant overall impacts were observed for Medicare beneficiaries in ADK Demonstration practices for the measures of total Medicare expenditures, expenditures for ER visits not leading to a hospitalization, and expenditures for total services with a secondary diagnosis of a behavioral health condition. There was little evidence that the ADK Demonstration reduced the growth of Medicare expenditures for beneficiaries with behavioral health conditions.

Table 4-33
New York: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid
expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid										
Year One	451	127.26*	[27.07, 227.44]	94.05*	[0.64, 187.46]	798	-7.43	[-145.22, 130.35]	153.88*	[45.75, 262.01]
Year Two	470	79.26*	[16.88, 141.63]	-45.03	[-115.65, 25.58]	727	-43.02	[-183.46, 97.42]	105.00*	[4.06, 205.94]
Year Three	605	-97.53	[-223.75, 28.69]	-111.99*	[-154.76, -69.22]	888	-97.38	[-234.51, 39.75]	64.81	[-97.81, 227.44]
Overall	724	31.55	[-52.49, 115.58]	-28.80	[-90.99, 33.38]	1,429	-74.17	[-181.74, 33.41]	85.21	[-18.88, 189.30]
Overall Aggregate		\$525,172		-\$479,473			-\$1,673,963		\$1,923,269	
Acute care										
Year One	451	23.99	[-26.50, 74.48]	35.88	[-16.10, 87.87]	798	-4.36	[-87.66, 78.94]	46.70	[-13.48, 106.89]
Year Two	470	0.37	[-27.01, 27.76]	11.18	[-20.59, 42.95]	727	-29.47	[-131.13, 72.18]	68.13*	[12.59, 123.67]
Year Three	605	-45.95*	[-72.88, -19.01]	-13.69	[-34.71, 7.34]	888	-10.06	[-101.63, 81.51]	92.93*	[20.67, 165.19]
Overall	724	-1.82	[-33.14, 29.49]	10.64	[-25.00, 46.29]	1,429	-25.46	[-94.22, 43.30]	40.82	[-11.33, 92.97]
Overall Aggregate		-\$30,360		\$177,194			-\$574,625		\$921,249	
ER										
Year One	451	-3.99	[-14.99, 7.01]	7.04*	[0.86, 13.23]	798	-18.94*	[-36.68, -1.20]	1.58	[-21.74, 24.89]
Year Two	470	-2.00	[-8.76, 4.75]	9.86*	[3.05, 16.68]	727	-19.60*	[-32.72, -6.47]	1.57	[-23.73, 26.87]
Year Three	605	-13.84*	[-24.03, -3.64]	-2.04	[-9.88, 5.81]	888	-31.50*	[-41.83, -21.17]	-22.33*	[-36.98, -7.68]
Overall	724	-7.99*	[-14.97, -1.00]	4.35	[-1.36, 10.06]	1,429	-22.65*	[-31.58, -13.72]	-10.64	[-25.21, 3.93]
Overall Aggregate		-\$132,956*		\$72,405			-\$511,278*		-\$240,127	

(continued)

Table 4-33 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid
expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition										
Year One	451	-349.69	[-761.20, 61.82]	-8.21	[-141.01, 124.59]	798	58.47	[-5.87, 122.80]	84.56*	[23.59, 145.52]
Year Two	470	-401.90*	[-777.10, -26.70]	67.06	[-119.16, 253.27]	727	-16.73	[-94.47, 61.01]	-16.25	[-80.26, 47.77]
Year Three	605	-587.21*	[-1055.57, -118.86]	-110.19	[-360.22, 139.83]	888	-80.87*	[-150.69, -11.06]	-5.47	[-64.06, 53.13]
Overall	724	-435.58*	[-791.95, -79.20]	-36.15	[-203.38, 131.08]	1,429	-20.71	[-78.20, 36.79]	20.24	[-26.60, 67.09]
Overall Aggregate		-\$7,250,623*		-\$601,756			-\$467,345		\$456,925	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique ADK Demonstration participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children and adults with behavioral health conditions, the growth of ER expenditures was lower for those in ADK Demonstration practices, although the impacts were inconsistent across CGs. In particular, **Table 4-33** shows that:

- Among Medicaid children with behavioral health conditions assigned to ADK practices, the growth in *overall aggregate* **expenditures for ER visits not leading to a hospitalization** was approximately \$133,000 lower compared with similar beneficiaries in PCMH practices.
- Among Medicaid children with behavioral health conditions assigned to ADK practices, the growth in *overall aggregate* **total services with a principal diagnosis of a behavioral health condition** was \$7.25 million lower compared with similar beneficiaries in PCMH practices.
- Among Medicaid children with behavioral health conditions, no statistically significant overall impacts were observed for **total Medicaid expenditures** or **acute-care expenditures**.
- Among Medicaid adults with behavioral health conditions assigned to ADK Demonstration practices, the growth in *overall aggregate* **expenditures for ER visits not leading to a hospitalization** was approximately \$511,000 lower compared with similar beneficiaries in PCMH practices.
- Among Medicaid adults with behavioral health conditions, the positive estimate in Years Two and Three suggested a potential trend toward greater growth in **acute-care expenditures** among beneficiaries assigned to ADK Demonstration practices relative to similar beneficiaries in non-PCMH practices, although the *overall* estimate was not statistically significant.

Among Medicaid adults with behavioral health conditions, no statistically significant overall impacts were observed for total Medicaid expenditures or total services with a principal diagnosis of a behavioral health condition. There was little evidence that the ADK Demonstration reduced the growth of Medicaid expenditures for beneficiaries with behavioral health conditions, with the exception of lower growth for ER visits not leading to a hospitalization.

Table 4-34
New York: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 3,253)	-7.26	[-15.17, 0.65]	-2.30	[-14.67, 10.07]
Year Two (N = 3,352)	-13.18*	[-23.12, -3.24]	2.39	[-8.28, 13.06]
Year Three (N = 3,294)	-9.30	[-22.10, 3.50]	0.15	[-12.99, 13.30]
Overall (N = 4,178)	-8.37*	[-16.55, -0.19]	0.43	[-9.36, 10.23]
Overall Aggregate	-335*		17	
ER visits not leading to hospitalization				
Year One (N = 3,253)	-4.50	[-29.17, 20.17]	-10.02	[-45.28, 25.25]
Year Two (N = 3,352)	-2.58	[-30.32, 25.16]	-0.61	[-31.10, 29.87]
Year Three (N = 3,294)	-39.82*	[-77.30, -2.34]	38.17*	[0.23, 76.11]
Overall (N = 4,178)	-17.27	[-40.76, 6.21]	16.21	[-8.23, 40.65]
Overall Aggregate	-692		649	
Behavioral health inpatient admissions				
Year One (N = 3,253)	-0.58	[-1.91, 0.74]	0.53	[-0.87, 1.93]
Year Two (N = 3,352)	0.54	[-1.34, 2.43]	1.17	[-1.75, 4.09]
Year Three (N = 3,294)	2.86	[-1.42, 7.14]	1.19	[-2.12, 4.50]
Overall (N = 4,178)	1.28	[-0.79, 3.35]	0.78	[-1.27, 2.83]
Overall Aggregate	51		31	
Behavioral health ER visits				
Year One (N = 3,253)	-4.94*	[-9.25, -0.63]	-4.73	[-11.43, 1.97]
Year Two (N = 3,352)	1.23	[-3.10, 5.57]	0.99	[-2.77, 4.75]
Year Three (N = 3,294)	-4.03	[-8.89, 0.84]	5.06	[-1.97, 12.10]
Overall (N = 4,178)	-2.22	[-5.90, 1.45]	0.61	[-2.21, 3.43]
Overall Aggregate	-89		24	

(continued)

Table 4-34 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	ADK PCMHs vs. CG PCMHs		ADK PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits				
Year One (N = 3,253)	-26.48	[-82.68, 29.72]	-23.21	[-72.14, 25.71]
Year Two (N = 3,352)	-100.14*	[-184.59, -15.70]	-102.41	[-221.03, 16.22]
Year Three (N = 3,294)	-84.29*	[-166.03, -2.55]	-152.76	[-377.52, 72.00]
Overall (N = 4,178)	-74.80*	[-149.48, -0.13]	-102.25	[-237.87, 33.36]
Overall Aggregate	-2,997*		-4,097	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique ADK Demonstration participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with behavioral health conditions, there was some evidence of reduced utilization for beneficiaries assigned to ADK Demonstration practices relative to the PCMH CG beneficiaries. Specifically, **Table 4-34** shows that:

- Among Medicare beneficiaries with behavioral health conditions assigned to ADK Demonstration practices, **all-cause inpatient admissions** decreased by 335 visits compared with similar beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions assigned to ADK Demonstration practices, **behavioral health outpatient visits** decreased by 2,997 visits compared with similar beneficiaries assigned to PCMH practices.

No statistically significant impacts were observed among Medicare beneficiaries with behavioral health conditions for the overall measures of ER visits not leading to a hospitalization, behavioral health inpatient admissions, and behavioral health ER visits.

Table 4-35
New York: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral
health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions										
Year One	451	4.28	[-15.48, 24.05]	19.93	[-6.53, 46.38]	798	-4.51	[-24.01, 15.00]	11.70	[-7.91, 31.32]
Year Two	470	10.55	[-14.63, 35.73]	12.31	[-6.63, 31.26]	727	-1.53	[-24.69, 21.62]	10.96	[-13.77, 35.69]
Year Three	605	-23.20	[-75.87, 29.48]	4.14	[-3.85, 12.13]	888	-19.43	[-46.76, 7.91]	3.28	[-20.19, 26.75]
Overall	724	0.16	[-11.42, 11.75]	12.50	[-4.53, 29.53]	1,429	-10.46	[-29.37, 8.45]	7.50	[-9.92, 24.93]
Overall Aggregate		9		694			-787		564	
ER visits not leading to hospitalization										
Year One	451	28.48	[-83.24, 140.21]	53.99	[-99.99, 207.96]	798	-73.20	[-193.03, 46.62]	54.05	[-106.58, 214.68]
Year Two	470	30.38	[-53.49, 114.24]	75.35	[-43.40, 194.09]	727	3.19	[-101.90, 108.27]	142.61*	[10.47, 274.75]
Year Three	605	-24.40	[-75.71, 26.91]	-0.62	[-48.59, 47.35]	888	-109.68	[-221.19, 1.83]	-38.50	[-100.50, 23.49]
Overall	724	-19.30	[-101.64, 63.03]	28.94	[-37.36, 95.23]	1,429	-66.12	[-140.48, 8.24]	20.16	[-62.47, 102.80]
Overall Aggregate		-1,071		1,606			-4,974		1,517	
Behavioral health inpatient admissions										
Year One	451	N/A	N/A	12.77	[-18.95, 44.50]	798	0.30	[-10.40, 11.01]	5.60	[-5.44, 16.63]
Year Two	470	N/A	N/A	6.24	[-9.92, 22.39]	727	-4.53	[-15.95, 6.90]	6.98	[-3.29, 17.25]
Year Three	605	N/A	N/A	2.40	[-3.37, 8.16]	888	-12.45	[-26.71, 1.81]	-2.08	[-14.37, 10.22]
Overall	724	N/A	N/A	6.98	[-10.10, 24.05]	1,429	-5.03	[-12.51, 2.46]	5.38	[-1.34, 12.09]
Overall Aggregate				387			-378		404	
Behavioral health ER visits										
Year One	451	24.15	[-40.85, 89.15]	-1.77	[-41.46, 37.92]	798	-87.72	[-211.73, 36.29]	16.88	[-64.81, 98.57]
Year Two	470	-25.84	[-87.24, 35.56]	14.52	[-24.31, 53.34]	727	-58.23	[-156.14, 39.67]	-1.52	[-49.80, 46.77]
Year Three	605	-62.37	[-197.11, 72.38]	7.43	[-24.15, 39.01]	888	-64.67	[-156.33, 26.99]	-31.43	[-73.87, 11.00]
Overall	724	-42.92	[-135.45, 49.61]	8.47	[-19.99, 36.93]	1,429	-64.48	[-144.54, 15.58]	-21.81	[-62.34, 18.73]
Overall Aggregate		-2,382		470			-4,851		-1,641	

(continued)

Table 4-35 (continued)
New York: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs		N	ADK Demonstration vs. CG PCMHs		ADK Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits ¹										
Year One	451	167.84	[-8.52, 344.19]	94.97	[-17.74, 207.68]	798	134.61*	[10.39, 258.84]	63.16	[-59.02, 185.34]
Year Two	470	129.50	[-33.40, 292.40]	46.12	[-54.35, 146.59]	727	55.33	[-38.14, 148.80]	-9.89	[-94.76, 74.98]
Year Three	605	69.44	[-52.24, 191.12]	-43.56	[-202.37, 115.26]	888	-61.88	[-145.79, 22.02]	-25.72	[-129.37, 77.93]
Overall	724	129.19	[-32.50, 290.88]	42.22	[-45.83, 130.28]	1,429	42.52	[-32.99, 118.02]	14.49	[-59.77, 88.74]
Overall Aggregate		7,168		2,343			3,199		1,090	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique ADK Demonstration participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

ADK = Adirondack Medical Home; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children and adults with behavioral health conditions, there was no evidence that the ADK Demonstration significantly reduced the rate of any of the utilization measures. Specifically, **Table 4-35** shows that no statistically significant overall results were observed among Medicaid children and adults with behavioral health conditions for the overall measures of all-cause inpatient admissions, ER visits not leading to a hospitalization, behavioral health inpatient admissions, behavioral health ER visits, and behavioral health outpatient visits.

4.7.3 Discussion of Special Populations

Although New York did not explicitly adopt a focus on specific special populations, all three Pods have targeted certain initiatives to: 1) patients with chronic illnesses (e.g., diabetes, COPD, CHF, and asthma), 2) patients at risk for complications from particular chronic conditions, and 3) patients at high risk for medical events because of significant medical or psychosocial needs. The initiative most frequently cited by Pod administrators and practices was extending case management by care managers to these patients. The general expectation is that helping these patients better manage their conditions and obtain evidence-based care could lead to more appropriate use of health services and better health outcomes, which could result, in turn, in lower rates of total expenditure growth for these patients.

When examining total Medicare PBPM expenditures among Medicare beneficiaries with multiple chronic conditions, the quantitative results did not show statistically significant findings in average growth in total expenditures of beneficiaries with multiple chronic conditions. When we examined expenditures for this subgroup of beneficiaries in more detail, however, we found that overall average growth in expenditures for acute care, primary care, and imaging were lower among those assigned to ADK Demonstration practices relative to those assigned to comparison PCMH or non-PCMH practices (**Table 4-28**). Moreover, the magnitude of the lower growth rates was larger for beneficiaries with multiple chronic conditions than for the general Medicare ADK Demonstration population.

For the Medicaid population, we found that overall growth in total Medicaid expenditures was greater among adult ADK Demonstration beneficiaries with multiple chronic conditions relative to adult beneficiaries with multiple chronic conditions in PCMH practices. The same was true among adult Medicaid beneficiaries who were considered members of other special populations (e.g., those with behavioral health conditions, those residing in rural areas, and those enrolled in Medicaid due to disability). In Medicaid, the only significant reductions in cost growth in total Medicaid expenditures were among disabled Medicaid beneficiaries who are children. There were no specific categories of expenditures that clearly accounted for this lower growth (**Table 4-22**), although the relatively small sample size of this population (1,368 ADK Demonstration children) may account for the lack of clear findings. The significant cost growth for some of these special populations in Medicaid is perplexing; as discussed earlier, we can speculate that it is possible that some CG practices may have had targeted cost containment or patient-centered initiatives that could have been more successful than those in the ADK Demonstration in reaching special populations.

Because of the considerable amount of time spent by practices to improve the care received by beneficiaries with multiple chronic conditions, we also examined several key quality of care metrics. We found reductions in the rate of preventable hospitalizations only relative to

Medicare beneficiaries with multiple chronic conditions assigned to PCMH practices (**Table 4-25**). Among those Medicare and Medicaid beneficiaries with multiple chronic conditions who had diabetes specifically, we did not observe significant changes in quality of care. Echoing results seen in the full Medicaid study sample, Medicaid beneficiaries with multiple chronic conditions were more likely to have a cervical cancer screening relative to the CGs. We also examined access to care and continuity of care for both populations and found no consistent findings suggesting improved access and continuity in the Medicare population, although similar to the full Medicaid sample, there were some positive findings related to increased use of primary care for the Medicaid population (**Table 4-26** and **Table 4-27**).

Notably, the overall average growth in total expenditures was lower for Medicare beneficiaries in Pod 2 relative to both PCMH and non-PCMH CGs (**Table 4-19**). The lower growth in expenditures was driven by reductions in expenditures for acute care, specialty physicians, and primary care physicians (**Table 4-20**). We noted during the site visit that Pod 2 was larger, better funded, and more centrally organized in its care management services than Pods 1 and 3, due in large part to the fact that Pod 2 is comprised of a single network of FQHCs. The coordinated efforts of Pod 2 to implement practice transformation and care management initiatives throughout each of its FQHCs may explain, in part, the relatively better performance for beneficiaries in Pod 2 compared with the other Pods. Notably, we did not find a similar pattern of lower total Medicaid expenditure growth for the Pod 2 Medicaid beneficiaries. Although there are no clear and obvious reasons for this finding, one possibility could be degree to which Medicaid CG practices were also undergoing PCMH transformation. New York's Medicaid program was promoting transformation activities through the Medicaid health homes program, thereby creating a climate of transformation similar to the ADK Demonstration practices.

Addressing the needs of patients with behavioral health conditions proved difficult. With a greater focus on connecting these patients to needed behavioral health care services, there was an expectation that rates of outpatient behavioral health care visits might increase for ADK Demonstration participants. Several providers interviewed during the site visits spoke at length of significant unmet needs for behavioral health treatment in the Adirondack region, and several providers also spoke of the disproportionately high numbers of patients within their panels with behavioral health conditions. Many providers, particularly in Pods 1 and 3, were struggling just to address depression within the primary care setting. They acknowledged that most of the complicated behavioral health conditions were not being addressed because of staffing shortages (e.g., mental health providers) and a lack of resources for these patients. Although Pod 2 was able to hire a social worker to help the highest-need patients access social, mental health, and substance abuse services, interviewees consistently noted that mental health treatment was simply not available in the area.

Consistent with the qualitative findings that providers were attempting to address unmet behavioral health needs and link beneficiaries to services, we found some evidence in the quantitative analysis of greater growth in total expenditures for which a behavioral health condition was a primary diagnosis among Medicare beneficiaries assigned to the ADK Demonstration. The change was modest, and we did not see any commensurate changes in office visits for behavioral health care or reductions in high-cost use, such as inpatient admissions and ER visits (**Tables 4-32** and **4-34**).

Findings among the Medicaid population were similarly unexpected. Despite some success (e.g., lower growth in ER expenditures for adults), there was no pattern of results in the analyses of Medicaid beneficiaries with behavioral health conditions to suggest that patterns of care were significantly altered for those with behavioral health conditions.

4.8 Discussion of New York’s MAPCP Demonstration

The ADK Demonstration was viewed among state officials, payers, and practices as a strong and stable advanced primary care (APC) initiative that was an integral part of New York’s overall strategy to accomplish two major objectives: 1) stabilize the availability of PCPs in a predominantly rural and traditionally underserved region and 2) transform the delivery of primary care for the region to be more advanced, of higher quality, and more efficient. Throughout the demonstration period, all payers remained committed to the project, and nearly all practices continued their participation into 2016 as the demonstration came to an end.

Throughout the ADK Demonstration, state leaders made some changes in structure and payment methodology to further refine the impact of the practice transformation experience. One key change in the governance structure during Year Two of the evaluation period was the creation of the Executive Committee to help streamline the process for quicker decisions across the three Pod regions and to better engage key stakeholders. Ongoing engagement of these key stakeholders, including payers, in developing and implementing the initiative was considered critical to maintaining the collaborative environment and ongoing commitment to the ADK Demonstration. Although payers experienced challenges and frustrations over the years, the stakeholder engagement and decision-making processes created by the state gave all participants an equal voice and built strong relationships that kept all parties committed. New York’s cross-payer alignment was particularly important in the early years, and many state officials argued this strong alignment was New York’s “secret sauce.”

Another key change was adding a P4P component to the PMPM payments to practices. Although the state faced some early difficulty in getting practices to buy in to the concept of rewards for performance improvements in quality of care, utilization, and cost, practices did not report any difficulties meeting targets to receive the additional payments. Overall, the payments received by practices to support practice transformation through the ADK Demonstration were both appreciated and considered vital, but most practices agreed that the payments did not fully support the services expected of them to optimally function as PCMHs. Given that a portion of the PMPM payment went to supporting the Pods and AHI, practices did not think that all their investments in practice transformation were covered by the PMPM portion they received. A final change in structure was providing Pod 1 with a dedicated Pod coordinator. This was done to re-engage stakeholders and increase their participation in the smallest Pod region, which had a larger share of small, independent practices not part of provider systems.

Practices participating in the ADK Demonstration made substantial progress in practice transformation improvements during the evaluation period, particularly in increasing access to primary care, adopting health IT, and enhancing care management. Most participating practices continuously made refinements to their care management processes throughout the evaluation period. In the first year of the ADK Demonstration, practices focused many of their efforts on hiring new physicians and mid-level providers (e.g., PAs) to improve access to care. Extended

evening and weekend office hours also helped promote access. These efforts likely contributed to the increased rate of primary care visits among Medicaid adult and child beneficiaries.

Later in the demonstration, practices turned their focus to making improvements in care management processes and care coordination with other providers. The creation of care management teams was a critical change practices made to improve quality of care for all their patients, particularly those at high risk of complications and ones with comorbidities. Care managers hired by the Pods were instrumental in making necessary linkages between patients, other medical providers, and community resources, and beneficiaries were generally positive about the outcomes of such coordination. However, there were gaps in access that were not readily addressed. For example, providers repeatedly noted a dearth of behavioral health resources in the Adirondack region, and significant unmet need for behavioral health care remained. Further, care managers across all the practices dedicated a significant portion of their time to monitor patient quality of care data and help physicians better target areas in which patients needed help. Even though Medicare and Medicaid claims analyses suggested overall minimal improvements in quality of care and care coordination metrics, practices invested significant resources and efforts, primarily through care management enhancements, to improve quality of care and care coordination for all their patients.

Health IT played a significant role in the ADK Demonstration. Nearly all participating practices upgraded their health IT capabilities at some point during the demonstration to meet the more robust NCQA PCMH 2011 standards. Although it took time and a lot of effort, practices became more sophisticated at tracking and analyzing data to guide quality improvement activities, although there was considerable variation across practices and smaller practices faced greater challenges in using data. Despite these improvements, stakeholders acknowledged data challenges, including data lags, that hampered efforts to aggregate and merge claims and clinical outcome data in a more timely way.

Despite the concerted efforts by ADK Demonstration practices to make critical changes to access and care management, quantitative findings did not align with expectations given the significant amount of work that practices and Pods underwent to transform into PCMHs. Although total Medicare and Medicaid costs did not decrease for these populations as a whole relative to the CG, the success of Pod 2 in reducing total Medicare expenditures is noteworthy. Pod 2's lower growth in expenditures was driven primarily by reductions in expenditures for acute care and specialty care physicians. These positive findings in Pod 2, which was comprised of the network of FQHC sites, are likely due to their having more comprehensive and cohesive resources for practice management, data analysis and interpretation, and care coordination and management.

A few factors may have limited the impact of the ADK Demonstration on claims-based measures of access, quality, utilization, and expenditures. There was considerable heterogeneity among the participating practices in the extent of PCMH transformation. For example, unlike Pod 2, smaller practices—like in Pod 3—faced greater challenges in providing enhanced access, care coordination, and systematic use of data to improve patient care. This heterogeneity likely also applied to the CG, with at least some CG practices operating in an environment supportive of practice transformation to achieve greater patient-centered primary care, such as ACOs or Medicaid health homes. This would have led to greater comparability between the ADK

Demonstration practices and CG practices. Finally, another critical factor that may have limited the lack of impacts is the duration of the demonstration. It was possible that 3 years was not sufficient time to see the impact of these practices.

With regard to the sustainability of practices as PCMHs after the demonstration ends, stakeholders remarked that the ADK Demonstration had several unintended benefits: It helped prepare practices to meet meaningful use requirements, and it helped practices participate in ACOs. Nearly all practices in Pod 1 are now members of the new ACO in that region. Several stakeholders identified the ACO as a likely successor to the ADK Demonstration.

The ADK Demonstration showed that primary care cannot by itself fix all the ills of the health care system. Changes in patient behavior and utilization of services outside the direct control of the PCMH can hamper the effectiveness of primary care practices' efforts. The demonstration also showed that it can take significant time and energy to become fully staffed and establish roles, responsibilities, and work flows to improve care coordination. However, primary care practices part of an existing integrated health care delivery network can be successful, as demonstrated by Pod 2's ability to reduce Medicare total expenditures.

Although the evidence of impacts on Medicare and Medicaid utilization and expenditures was limited, the ADK Demonstration provided a crucial platform for engaging PCPs, payers, and state officials in health care system reform in the underserved, primarily rural Adirondack region of New York. It also was successful in connecting patients to specialists, hospitals and other care settings, behavioral health, or long-term services and supports. These successes will serve the state well as it moves into its next phase of health care reforms.

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CHAPTER 5

RHODE ISLAND

Overview of Rhode Island Evaluation Results

The Chronic Care Sustainability Initiative (CSI), Rhode Island's multi-payer patient-centered medical home (PCMH) initiative focused on improving care for adults with chronic conditions, launched in 2008 with five pilot practices and nearly universal commercial and Medicaid managed care plan participation. The initiative had the strong support of the Rhode Island Office of the Health Insurance Commissioner (OHIC), which received a grant to convene stakeholders starting in 2006 to conceptualize the project. After Medicare joined CSI in July 2011 as part of the MAPCP Demonstration, participating practices received PCMH payment support for nearly all insured patients. Payers offered enhanced payment and other support (e.g., technical assistance and performance feedback reports) in exchange for practices meeting National Committee for Quality Assurance (NCQA) Physician Practice Connection Patient Centered Medical Home (PPC[®]-PCMH[™]) standards, quality improvement goals, and cost reduction goals.

Below are some of the key findings from the MAPCP Demonstration in Rhode Island:

- Over the course of the MAPCP Demonstration, approximately 14,000 Medicare beneficiaries and 27,000 Medicaid beneficiaries received care from practices that participated in the demonstration. In December 2014, CSI had 104 participating providers at 16 practices.
- CMS paid out almost \$1.9 million in care management fees over the course of the demonstration to MAPCP practices and other supporting entities for the infrastructure and services provided as part of the initiative.
- During 14 quarters of the MAPCP Demonstration, there were no significant savings to Medicare attributable to the MAPCP Demonstration in Rhode Island, either before or after accounting for the demonstration fees paid by Medicare. Similarly, CSI did not have a statistically significant impact on total expenditures for Medicaid beneficiaries. For both groups, this reflects the absence of savings in any of the categories of expenditures examined, including acute care and emergency room (ER) visits.
- CSI emphasized tracking and reporting quality metrics data, and practices received performance-based payment tied to a set of quality of care measures. Nearly all CSI providers reported using systematic quality improvement approaches. However, there was little evidence of improvements in claims-based processes of care measures for either Medicare or Medicaid beneficiaries and no evidence of improvements in claims-based health outcomes measures for Medicare beneficiaries.
- CSI practices were required to have an embedded nurse care manager. The nurse care managers were widely viewed as a major success of CSI. Among the responsibilities

of nurse care managers were coordinating care and facilitating care transitions, especially for hospitalized patients. Improving access to care and care coordination, particularly through extended hours, compacts with specialists, and activities of the nurse care managers, was described as a major focus of CSI practices. Despite this, there was limited or no evidence of significant improvements for either Medicare or Medicaid beneficiaries in outcomes related to access to care or coordination of care.

- The few statistically significant findings tended to be for outcomes that were under the direct control of the practice (e.g., among Medicare beneficiaries, significant increases in primary care visits, office visit expenditures, and continuity of care; among Medicaid beneficiaries, improvement in two diabetes-related measures related to metrics used to determine quality-related performance payments). Although the results were not statistically significant, negative point estimates for Year 3 and the entire demonstration period overall suggest a trend toward reductions in unplanned readmissions for Medicaid beneficiaries relative to the PCMH comparison group (CG).
- CSI beneficiaries reported high levels of satisfaction with practice communication, and most patients felt that they were partners with their PCPs in making decisions about their care.
- Several factors may have contributed to the absence of improvement in most outcomes despite evidence of structural changes made by CSI practices. These include: (1) the relatively small number of beneficiaries in CSI and high variability in medical expenditures, which make it difficult to detect statistically significant differences; (2) the broad diffusion of primary care practice transformation in Rhode Island, which may have affected CG practices; (3) limited efforts to engage the hospitals and other members of the broader medical community beyond PCPs; (4) challenges in successfully targeting high-risk patients; and (5) heterogeneity among participating practices in PCMH transformation.
- In spite of the limited improvements in outcomes, CSI enjoyed consistent, strong support among state officials, payers, and practices throughout the MAPCP Demonstration. Stakeholders viewed CSI as providing the basis for further health care system reforms by strengthening the primary care infrastructure in Rhode Island.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to CSI, Rhode Island's preexisting multi-payer initiative, which added Medicare as a payer in 2011 to implement the MAPCP Demonstration. We report findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Rhode Island in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in early 2014;

- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from the CSI practices more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and analyzed the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey of CSI patients fielded by CSI. Ten focus groups were held in Rhode Island: five groups in Providence and five groups in Wakefield in October 2014. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Groups ranged in size from three to eight participants, for a total of 58 participants. See *Appendix O* for more details about focus group participant characteristics.

As described in the preceding section, Rhode Island administers an annual CAHPS PCMH survey of all patients in CSI practices. Because the survey was completed shortly before RTI International planned to field its CAHPS PCMH survey in April and May 2014, we made arrangements to obtain Rhode Island's survey data to minimize the response burden for CSI practice patients. Unlike RTI's survey, which was administered by mail only, Rhode Island's survey used mail with telephone follow-up. In addition, Rhode Island's survey was not limited to Medicare beneficiaries, and payer information was not collected. To make the data as similar as possible to those for other MAPCP Demonstration states, we restricted our analyses to respondents aged 65 years and older who completed surveys by mail. As a result, unlike the other states, younger disabled Medicare beneficiaries, including younger dually eligible beneficiaries, were excluded from the results. The CAHPS PCMH survey was fielded to 1,214 beneficiaries age 65 and over in demonstration practices. A 46 percent response rate was achieved with a total of 544 completed surveys. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we fielded an online survey among all practices participating in the MAPCP Demonstration, including the 16 Rhode Island practices participating in the demonstration at the time of our survey. A total of 33 providers from 14 of the 16 Rhode Island practices completed the survey.

This chapter is organized by major evaluation domains. *Section 5.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in CSI. *Section 5.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health

outcomes (*Section 5.3*); access to care and coordination of care (*Section 5.4*); beneficiary experience with care (*Section 5.5*); effectiveness as measured by health care utilization and expenditures (*Section 5.6*); and special populations (*Section 5.7*). The chapter concludes with a discussion of the findings (*Section 5.8*).

5.1 State Implementation

In this section, we present findings related to the implementation of the Rhode Island CSI and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the MAPCP Demonstration?
- Were any major implementation issues encountered during the evaluation period and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in *Section 5.1.1*, which describes the major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by CSI project staff; monthly calls between CSI staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. *Section 5.1.2* presents a logic model reflecting our understanding of the link between specific elements of CSI and expected changes in outcomes. *Section 5.1.3* presents key findings gathered from the site visits regarding the implementation experience of state officials, payers, and providers during the evaluation period. *Section 5.1.4* concludes the State Implementation section with lessons learned.

5.1.1 Rhode Island State Profile as of December 2014

The overarching mission of CSI was improving health outcomes—especially for those with chronic illnesses—by transforming primary care. The project began with a 2006 grant from the Center for Health Care Strategies that enabled OHIC to convene stakeholders to conceptualize the project. Stakeholders agreed that a multi-payer model was ideally suited for advancing common goals for quality, access, and cost. CSI was launched in 2008, backed by nearly universal commercial and Medicaid managed care plan participation. Payers offered enhanced payment and other support in exchange for practices' meeting NCQA PPC®-PCMH™ standards, quality improvement goals, and cost reduction goals.

Rhode Island's participation in the MAPCP Demonstration, and corresponding Medicare payments to CSI practices, began in July 2011. Participating CSI practices had PCMH payment support for nearly all insured patients, including all commercially insured patients, throughout the demonstration period. The MAPCP Demonstration in Rhode Island initially was planned to end on June 30, 2014, but was extended until December 31, 2014. Subsequently, after all participating payers, including Medicare, agreed to continue participating, the demonstration was extended through December 31, 2016. In October 2014, Rhode Island announced that CSI had

become a formally incorporated nonprofit organization and changed its name to the Care Transformation Collaborative (CTC) of Rhode Island. CTC's mission is to transform primary care in Rhode Island in the context of integrated systems of care. This report continues to use the initial name (CSI) for the Rhode Island initiative.

State environment. OHIC first convened CSI in June 2006. OHIC led the initiative, offered antitrust protection for payers to collaborate, and promoted a sense of common purpose among a diverse array of stakeholders. Stakeholders—including primary care providers (PCPs), payers and purchasers, state agencies, and independent experts—helped OHIC plan, design, and implement CSI.

In 2009, OHIC used its leverage to establish four Affordability Standards for commercial health insurers, which took effect in 2010, 2 years after the launch of CSI. OHIC proposed updates to the Affordability Standards in 2014 to reflect changes in the health care market while maintaining the standards' original intent. These updated standards were adopted through regulation in February 2015. The first standard was known as the primary care spend standard. The original requirement, in effect from 2010 through 2014, directed insurers to increase the proportion of their total health care expenditures on primary care by one percentage point per calendar year; insurers exceeded this goal, on average. According to the revised primary care spend standard, insurers were required to maintain the minimum proportion of medical spending on primary care at 10.7 percent, just above the projected 2014 level. The standard emphasized innovative payment models and infrastructure investment, rather than FFS primary care payment rate increases. CSI was one mechanism by which insurers increased spending on primary care to fulfill this requirement.

The other requirements of the original Affordability Standards were to (1) participate in CSI; (2) contribute financial support to CurrentCare, Rhode Island's health information exchange (HIE); and (3) participate in state payment reform efforts. The updated Affordability Standards expanded the definition of the support carriers are expected to provide for primary care transformation and payment reform. Targets were set for the percentage of contracted primary care practices that are PCMHs (e.g., 80% by 2019); for the percentage of insured lives attributed to shared savings, risk sharing, or global capitation contracts (e.g., 30% by 2015; 40% by 2016); and for the decreased use of FFS payment methods in favor of alternatives, in hospitals and in other settings.

Over the course of the demonstration, elected officials were broadly supportive of CSI. In 2011, Rhode Island enacted the Rhode Island All-Payer Patient Centered Medical Home Act to codify much of CSI's work. The legislation required the future participation of state-regulated health insurers. In addition, the Medical Home Act elevated the Rhode Island Executive Office of Health and Human Services to the position of co-convenor of CSI.

Several other programs in the state that operated concurrently with the MAPCP Demonstration may have affected outcomes for participants in CSI and the CG populations:

- Medicaid FFS operated a primary care case management program, Connect Care Choice, for beneficiaries with chronic illnesses, with nine CSI practices participating.

Connect Care Choice closely aligned with CSI criteria, including having a nurse care manager in the practice, offering expanded access to the practice.

- The Rhode Island Quality Institute (RIQI) operated Rhode Island's Regional Extension Center, which supported Rhode Island providers in adopting health information technology (health IT). RIQI also operated CurrentCare. CSI contracted with RIQI to provide data analytics for CSI practices. This service was provided originally under RIQI's \$15.9 million Beacon Community grant, which ran from July 2010 through March 2013. The goals of the Beacon Community grant were closely aligned with those of CSI; grant funding was used to provide support and technical assistance to all CSI practices and to convene joint committees and work groups to harmonize quality measures and enhance coordination. Beacon also provided significant data collection (including creation of an interim data warehouse until construction of an all-payer claims database was completed), analysis, and reporting support to CSI, as well as practice transformation support to CSI and Beacon practices. After the end of the Beacon Community grant, RIQI continued its work related to CurrentCare and data analytics, funded by \$1.00 per member per month (PMPM) payments from commercial payers, state Medicaid, state government (for state employees), and self-insured employers.
- Rhode Island received approval for three Section 2703 Health Homes State Plan Amendments (SPAs), one of which is most relevant to CSI. Approved in November 2011, this SPA targeted individuals with serious and persistent mental illnesses; target providers were community mental health centers. Rhode Island's enhanced federal match for health home services through this SPA ended on October 1, 2013.
- Coastal Medical, a large group practice with four practice sites participating in CSI, was selected to participate in the Medicare Shared Savings Program in July 2012.
- In February 2013, Rhode Island was awarded a \$1.6 million State Innovation Model (SIM) Initiative Model Design grant from the Center for Medicare and Medicaid Innovation (CMMI) to develop a State Health Care Innovation Plan.¹ In December 2014, the state was awarded a SIM Model Test grant for up to \$20 million to implement and test its State Health Care Innovation Plan, which had a core focus on integrating primary care and behavioral health care.² CSI leadership participated throughout the planning process for the initial SIM grant and in the planning and award process for the Model Test grant.
- Blue Cross Blue Shield of Rhode Island (BCBSRI) operated an independent PCMH program. With the expansion of CSI practices (see **Section 5.1.3**), BCBSRI phased out its PCMH program, ending it in 2014. BCBSRI also provided grants to some

¹ The full text of the Rhode Island State Health Care Innovation Plan was available online at http://www.ohic.ri.gov/documents/Committees/HIAC/2013%20November%20Materials/4_Affordability%20Standards%20Summary%20with%20Recommendations%202013%201119.pdf.

² The Rhode Island SIM Grant Model Design Application Project Narrative was available online at www.healthcareri.gov/documents/RI_SIM_ONE.pdf.

practices to support the implementation of electronic health records (EHRs). In addition, under contract to CSI, BCBSRI provided practice transformation support to some CSI practices, replacing transformation support previously provided by TransforMED (a subsidiary of the American Academy of Family Physicians) through the Beacon program.

- The Brown University Primary Care Transformation Initiative developed a practice transformation support team through a Title VII grant from the federal Health Resources and Services Administration (HRSA). In 2013, CSI began contracting with Memorial Hospital of Rhode Island for Brown to provide practice facilitation to CSI practices; Brown's services also replaced some practice transformation support activities previously provided by TransforMED.
- In January 2014, Rhode Island implemented the option under the Affordable Care Act (ACA) to expand Medicaid eligibility to all adults with incomes of up to 138 percent of the federal poverty level (FPL).³

Demonstration scope. In 2008, CSI began payments to five pilot practices located throughout the state, with an expectation that each practice would focus primarily on improving care for adults with chronic conditions. CSI practice participation in the MAPCP Demonstration expanded twice, in April 2010 and October 2012, both through competitive application processes.

Table 5-1 shows participation in CSI at the end of Years One, Two, and Three of the demonstration and the end of the evaluation period (December 31, 2014). Participating practices received payments for adult patients aged 19 or older only. Participating practices with attributed Medicare FFS beneficiaries numbered 16 at the end of Year One (June 30, 2012); 18 at the end of Year Two (June 30, 2013); and 16 at the end of Year Three (June 30, 2014) and at the end of the evaluation period (December 31, 2014)—no increase overall. While no practices terminated their participation in the demonstration, three practices that originally participated as individual sites consolidated with another participating practice, and one practice closed due to staff retirement. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, so the number of Medicaid participating practices is slightly lower. The number of providers in the participating practices with attributed Medicare FFS beneficiaries increased by 42 percent over this period, from 73 to 104. CSI added 20 practices in October 2013 and 25 practices in October 2014, but these practices were not part of the MAPCP Demonstration and did not receive payments from Medicare. These practices and patients attributed to them are not included in the MAPCP Demonstration evaluation.

The cumulative number of Medicare FFS beneficiaries who had ever participated in the demonstration for 3 or more months increased by 72 percent over this period, from 7,912 to 13,636. The cumulative number of Medicaid beneficiaries who ever participated for 3 or more months increased by 119 percent from the end of the first year through the end of the evaluation period. Because the numbers are cumulative and represent beneficiaries ever attributed to a CSI

³ The ACA expanded Medicaid eligibility to individuals with incomes up to 133 percent of the FPL; however, there is a 5 percent income disregard, so the income limit is effectively 138 percent of the FPL.

practice for at least 3 months by a given date, the increase over time mainly reflects the attribution of new patients to participating practices. However, the increase from the end of the first year to the end of the second year was partly driven by the expansion in participating practices. The growth in the number of participating Medicaid beneficiaries (62%) was especially large because the practices added in 2012 included several federally qualified health centers (FQHCs).

The number of all-payer participants enrolled in CSI increased by 41 percent from the end of the first year through the end of the evaluation period. Rhode Island did not set a participation target for all-payer participants. However, as described in **Section 5.1.3**, CSI continually expanded the number of participating practices over the course of the MAPCP Demonstration period to increase the percentage of the state's population served by a PCMH. Practices added after October 2012 did not participate in the MAPCP Demonstration, and patients in these practices are not included in the numbers reported in **Table 5-1**.

Table 5-1
Rhode Island: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants⁴ participating in CSI

Participating entities	Number as of June 30, 2012	Number as of June 30, 2013	Number as of June 30, 2014	Number as of December 31, 2014
Medicare				
CSI practices ¹	16	18	16	16
Participating providers ¹	73	99	101	104
Medicare FFS beneficiaries ²	7,912	10,658	12,631	13,636
Medicaid				
CSI practices ³	13	16	15	15
Medicaid beneficiaries ³	12,527	20,302	26,896	27,402
All-payer				
CSI practices ⁴	—	—	—	—
Participating providers ⁴	—	—	—	—
All-payer participants⁴	46,212	53,946	59,251	65,174

NOTES:

- For Medicare, CSI practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices. The number of practices reflects the net change after the addition of new practices, consolidation of existing practices, and practice closure due to retirement.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating CSI practices and participated in the demonstration for at least 3 months. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- For Medicaid, CSI practices include only those practices with attributed Medicaid beneficiaries.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating CSI practices and participated in the demonstration for at least 3 months.
- The number of participating Medicaid providers could not be determined using the Medicaid FFS claims and managed care encounter files.
- The all-payer numbers are derived from the state using their own methodology. Thus, the numbers reported may not necessarily match the Medicare and Medicaid counts since the methodology may differ.

ARC = Actuarial Research Corporation; CMS = Centers for Medicare & Medicaid Services; CSI = Chronic Care Sustainability Initiative; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; — = data not available

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File (see Chapter 1 for more detail about these files); ³Rhode Island Medicaid enrollment and FFS claims and managed care encounter files; ⁴Rhode Island Quarterly Reports to CMS.

⁴ The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a CSI practice and participated in CSI for at least 3 months by the dates in the column headings. The number of all payer participants also represent the number of individuals who were ever attributed to a CSI practice. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent to treat design of our evaluation.

Originally, the state hoped to have 16 practices recognized as NCQA PCMHs and participating in the MAPCP Demonstration. As of December 31, 2014, 16 practices were recognized as NCQA PCMHs and participating in the MAPCP Demonstration, meeting the original projections.

The five payers that participated in CSI as of December 2014 included all commercial payers in Rhode Island: Medicare FFS, Neighborhood Health Plan of Rhode Island, BCBSRI, Tufts Health Plan, and United Healthcare. Neighborhood Health Plan is a Medicaid managed care plan, and the latter three payers participated on behalf of all of their business lines. BCBSRI and Tufts both had commercial and Medicare Advantage products; United had commercial, Medicare Advantage, and Medicaid managed care products. The state reported that by the end of 2014, the distribution of CSI patients by payment source was 15 percent Medicare FFS, 23 percent Neighborhood Health Plan, 36 percent BCBSRI, 1 percent Tufts Health Plan, and 24 percent United Healthcare. Rhode Island had relatively few self-insured employers, but 100 percent of the state's administrative services-only purchasers participated in CSI, including the state employee health plan. Most Rhode Island Medicaid beneficiaries were enrolled in managed care. Effective September 2010, Medicaid contracts with managed care plans required participation in CSI. Medicaid FFS did not participate in CSI.

Table 5-2 displays the characteristics of the practices participating in CSI as of the end of the evaluation period (December 31, 2014). There were 16 participating practices with attributed Medicare beneficiaries, with an average of seven providers per practice. Most of these were office-based practices (75%). An additional 25 percent were FQHCs—there were no critical access hospitals (CAHs) or rural health clinics (RHCs). All practices were located in metropolitan counties. With the exception of one office-based practice, all practices with attributed Medicare beneficiaries also had attributed Medicaid beneficiaries, so the characteristics of the participating practices were nearly identical for the two groups.

Table 5-2
Rhode Island: Characteristics of practices participating in CSI as of
December 31, 2014

Characteristic	Medicare ¹	Medicaid ²
	Number or percent	Number or percent
Number of practices (total)	16	15
Number of providers (total)	104	—
Number of providers per practice (average)	7	—
Practice type (%)		
Office-based practice	75	73
FQHC	25	27
CAH	0	0
RHC	0	0
Practice location type (%)		
Metropolitan	100	100
Micropolitan	0	0
Rural	0	0

NOTE:

- Number of providers could not be determined using the Medicaid FFS claims and managed care encounter files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; CSI = Chronic Care Sustainability Initiative; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = rural health center; — = data not available.

SOURCES: ¹ARC Q14 MAPCP Demonstration Provider File; ² Rhode Island's Medicaid claims, managed care encounter, and enrollment data (see Chapter 1 for more detail about this file).

In **Table 5-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating CSI practices during the evaluation period (July 1, 2011, through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration were not included in our evaluation or in this analysis. Thirty-three percent of beneficiaries assigned to CSI practices during the evaluation period were under the age of 65; 42 percent were ages 65–75; 17 percent were ages 76–85; and 8 percent were over age 85. The mean age was 66. Beneficiaries were mostly White (86%). One hundred percent lived in urban areas, and 59 percent were female. Thirty-two percent of beneficiaries were dually eligible for Medicare and Medicaid, and 39 percent were eligible for Medicare originally due to disability. One percent of beneficiaries had end-stage renal disease (ESRD), and less than 1 percent resided in nursing homes during the year before their assignment to a CSI practice.

Table 5-3
Rhode Island: Demographic and health status characteristics of Medicare FFS
beneficiaries participating in CSI from July 1, 2011, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	13,636
Demographic characteristics	
Age < 65 (%)	33
Age 65–75 (%)	42
Age 76–85 (%)	17
Age > 85 (%)	8
Mean age	66
White (%)	86
Urban place of residence (%)	100
Female (%)	59
Dually eligible beneficiaries (%)	32
Disabled (%)	39
ESRD (%)	1
Institutionalized (%)	0
Health status	
HCC score groups	1.01
Low risk (< 0.48) (%)	24
Medium risk (0.48–1.25) (%)	52
High risk (> 1.25) (%)	24
Mean Charlson Index score	0.73
Low Charlson Index score (= 0) (%)	64
Medium Charlson Index score (≤ 1) (%)	19
High Charlson Index score (> 1) (%)	17
Chronic conditions (%)	
Essential hypertension	32
Lipid metabolism disorders	17
Diabetes without complications	16
Other respiratory disease	12
Coronary artery disease	10
Cardiac dysrhythmias and conduction disorders	8
Dizziness, syncope, and convulsions	6
Disorders of joint	6
Chest pain	5
Anemia	5
Hypothyroidism	5
Diabetes with complications	4
Acute and chronic renal disease	4
Urinary tract infection	4
Renal failure	3
Heart failure	3

(continued)

Table 5-3 (continued)
Rhode Island: Demographic and health status characteristics of Medicare FFS
beneficiaries participating in the Rhode Island CSI from July 1, 2011,
through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	2
Valve disorders	
Malaise and fatigue (including chronic fatigue syndrome)	2
Peripheral vascular disease	1
Cardiomyopathy	1
Strokes	1
Dementias	0

NOTES:

- Percentages and means are weighted by the fraction of the year for which a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the Office of Management and Budget.

CSI = Chronic Care Sustainability Initiative; EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries’ health status during the year before their assignment to a CSI practice. HCC scores for Medicare beneficiaries assigned to a CSI practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to a CSI practice had a mean HCC score of 1.01, meaning that they were predicted to be 1 percent more costly than an average Medicare FFS beneficiary. Beneficiaries’ average score on the Charlson Comorbidity Index was 0.73.⁵ Just under two-thirds (64%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before their assignment to a participating CSI practice. The most common chronic conditions diagnosed were hypertension (32%), lipid metabolism disorders (17%), diabetes without complications (16%), other respiratory disease (12%), and coronary artery disease (10%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In *Table 5-4*, we report demographic and health status characteristics of adult Medicaid beneficiaries assigned to participating CSI practices during the evaluation period (July 1, 2011,

⁵ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples’ Charlson Comorbidity Index, the greater morbidity in the study sample.

through December 31, 2014). Children did not participate in CSI. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in the table above. The mean age of Medicaid beneficiaries in CSI was 32 years. All beneficiaries resided in an urban area. Almost three-quarters of CSI Medicaid beneficiaries were female (72%), and 13 percent were eligible for Medicaid due to disability. There were almost no CSI Medicaid beneficiaries in an institutional setting in Rhode Island. Medicaid beneficiaries in CSI had relatively few chronic conditions. Over two-thirds had no chronic conditions, although 10 percent had three or more chronic conditions. The mean Chronic Illness and Disability Payment System (CDPS) score was 0.79.⁶

Table 5-4
Rhode Island: Demographic and health status characteristics of Medicaid beneficiaries participating in the Rhode Island CSI from July 1, 2011, through December 31, 2014

Demographic and health status characteristics	Adults, percentage or mean
Total beneficiaries	27,402
Demographic characteristics	
Mean age	32
White (%)	N/A
Urban place of residence (%)	100
Female (%)	72
Medicaid eligibility due to disability (%)	13
Other Medicaid eligibility (%)	87
Institutionalized (%)	0
Health status	
Mean CDPS score groups	0.79
Mean number of chronic conditions	0.67
0 chronic conditions (%)	69
1–2 chronic conditions (%)	21
3 or more chronic conditions (%)	10

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met CSI eligibility criteria.
- Demographic and health status characteristics are calculated using Rhode Island’s Medicaid Enrollment and FFS claims and managed care encounter files, using claims and encounter data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.
- Children did not participate in CSI.
- To participate in CSI, Medicaid enrollees had to be enrolled in Medicaid managed care.
- Race data were missing for the majority of Medicaid beneficiaries in the Medicaid enrollment files.

CDPS = Chronic Illness and Disability Payment System; CSI = Chronic Care Sustainability Initiative; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available because race was not well reported in the data; PCMH = patient-centered medical home.

SOURCE: Rhode Island Medicaid enrollment and FFS claims and managed care encounter files.

⁶ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples’ CDPS scores, the greater morbidity in the study sample.

Practice expectations. Practice expectations, which evolved over the course of CSI, were specified in a common contract used by all payers. The first version of contracts, used until April 2013, included the “initial” 2-year contract and the “renewal” contract that built upon those requirements and applied to practices after they completed 2 years of participation in CSI. The second version of the contracts, which started in April 2013, was termed the “developmental” contract. The developmental contract was designed to encompass practices at all stages of participation in CSI, including those that had just joined and more mature practices.

Practice expectations in the initial and renewal contracts. Initial contracts required CSI practices to meet NCQA PPC®-PCMH™ Level 1 recognition standards within 6 months of execution of their initial contract and Level 3 recognition by the end of the initial 2-year contract period. Practices were required to satisfy additional program criteria, including providing nurse care manager services, participating in 1 year of practice transformation training, and using an electronic registry. After the expiration of their initial 2-year contract, CSI practices were subject to the conditions of a renewal contract that included requirements to reduce acute-care utilization and to demonstrate performance on key quality metrics. Additional renewal contract requirements included:

- regular generation of quality reports,
- measurement of patient satisfaction,
- achievement of specified utilization changes,
- expanded access to care outside normal business hours,
- adoption of best practices for care transitions between hospital and outpatient settings, and
- establishment of compacts to provide a framework for communication and care transitions with at least four specialists, including at least one hospitalist.⁷

Practice expectations in the developmental contract. The new developmental contract was designed to support practices at various stages of PCMH transformation. It defined four contract years (Start-Up Year, Transition Year, Performance Year One, and Performance Year Two) with stage-appropriate practice requirements, performance targets, and payments. Starting in April 2014, CSI added a fifth contract year (Performance Year Two-A) to accommodate the original five pilot practices, which already had completed Performance Year Two.

Under the developmental contract, all CSI practices were required to

- employ an EHR that met Stage 1 meaningful use standards.
- hire and train a nurse care manager.

⁷ Compacts were modeled on the Colorado Systems of Care/Patient-Centered Medical Home Initiative (2011) and similar recommendations from the American College of Physicians Council of Subspecialty Societies (CSS) PCMH Workgroup (American College of Physicians, 2013).

- participate in CSI training and reporting activities, including learning collaboratives.
- advance to a new transformation level and associated contract year annually. If practices failed to advance, the CSI Executive Committee reviewed the case and decided whether or not the practice would continue to participate in the initiative.

Additional expectations for practices in each contract year included the following:

Start-Up Year Practices

- Achieve and maintain Level 1 NCQA PPC®-PCMH™ recognition by the end of the first contract year.
- Submit an after-hours protocol detailing how and where patients could access care outside of the ER on evenings, weekends, and holidays, and implementation of the approved protocol within 6 months of the contract start date.
- Comply with the best practices set by Healthcentric Advisors (the state's Quality Improvement Organization) for care transitions between hospital and outpatient settings by the end of the Start-Up Year.

Transition Year Practices

- Comply with the basic developmental contract and Start-Up Year requirements described above.
- Achieve and maintain Level 2 NCQA PPC®-PCMH™ recognition.
- Establish compacts with at least four specialists, including at least one hospitalist, within 9 months of the Transition Year start date.

Performance Year One, Two, and Two-A Practices

- Comply with the requirements for the basic developmental contract, Start-Up Year, and Transition Year described above.
- Achieve and maintain Level 3 NCQA PPC®-PCMH™ recognition.

Support to practices. From July 1, 2011, through December 31, 2014, Medicare MAPCP Demonstration payments totaled \$1,979,712, including payments to demonstration practices; payments to South County Hospital, which employed the nurse care manager for some practices; and payments for CSI program management.⁸ The average Medicare payment per practice over the demonstration was \$116,454 (*Table 5-5*).

⁸ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

Table 5-5
Rhode Island: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Average Medicare payment per practice ¹	Total Medicare payments ¹
Year One	\$31,457	\$440,400
Year Two	\$33,081	\$562,379
Year Three	\$37,705	\$640,979
Year Four: 6 months only	\$20,997	\$335,954
Overall	\$116,454	\$1,979,712

NOTES:

- The Overall amounts include Years One, Two, and Three and two additional quarters ending December 31, 2014.
- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only. It does not include payments to South County Hospital or CSI.
- Total Medicare payments includes payments to practices, South County Hospital, and CSI.

CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: ¹Medicare claims data

Under the contract structure in place before April 2013, before the developmental contract, payments to practices changed when the practice moved from an initial contract to a renewal contract. Under the *initial* CSI contract, practices received \$3.00 PMPM as a base payment for PCMH services, plus \$1.16 PMPM earmarked for nurse care management. The enhanced reimbursement methodology changed when practices moved to the *renewal* CSI contract after 2 years of participation in CSI, increasing the base payment to \$5.50 PMPM, which included support for nurse care managers. Renewal CSI contracts also incorporated performance-related adjustments to the base payment of \$5.50 PMPM. These adjustments resulted in payment increases for practices meeting more performance targets, or payment reductions for those failing to meet a minimum standard. Depending on performance, the potential PMPM payments were either reduced by \$0.50, to \$5.00 PMPM, if none or one of the three specified performance targets was met; maintained at \$5.50 PMPM if the CSI-wide utilization performance target and one other performance target both were met; or increased by \$0.50, to \$6.00 PMPM, if all three specified performance targets were met. The utilization target was based on hospital admissions and ER visits; the quality target was based on seven clinical quality indicators;⁹ and the member satisfaction target was based on the results of a member satisfaction survey.

Under the *developmental* contract implemented in April 2013, practices received a base payment of \$5.50, including \$2.50 earmarked for nurse care management. Practices were eligible for additional PMPM performance payments based on meeting performance targets and their developmental stage, up to a maximum of \$6.00–\$8.75, depending on the developmental stage (**Table 5-6**). Because the developmental contract was negotiated after the MAPCP Demonstration began, Medicare payments were capped at the originally approved maximum rate

⁹ Practices originally reported six quality indicators. The number of indicators and the specific indicators reported changed in 2012 with the adoption of measures aligned with the Beacon Community initiative.

of \$6.00. As a result, in some cases, actual payments for Medicare beneficiaries may have been less than the rate paid for commercial or Medicaid patients.

In addition to the practice payments, an additional \$0.30 was paid for CSI program management.

Table 5-6
Rhode Island: PMPM payment rates to Rhode Island CSI practices under developmental contracts

Developmental stage, targets	PMPM payments
Start-Up Year <i>Target 1:</i> Achieve NCQA PPC®-PCMH™ Level 1 recognition, engage in practice transformation activities, and achieve required structural changes (hire nurse care manager, establish four compacts with specialists, and create and implement after-hours protocol). <i>Target 2:</i> Establish quality data reporting for required measures. <i>Target 3:</i> Implement interventions to reduce ER visits and inpatient admissions.	Maximum: \$5.50 Base: \$5.50
Transition Year <i>Target 1:</i> Achieve NCQA PPC®-PCMH™ Level 2 recognition; maintain required structural changes. <i>Target 2:</i> Establish quality data baseline and begin work to achieve targets. <i>Target 3:</i> Continue interventions to reduce ER visits and inpatient admissions.	Maximum: \$6.00 Base: \$5.50 <i>Target 2:</i> +\$0.50 to measure and report
Performance Year One <i>Target 1:</i> Achieve NCQA PPC®-PCMH™ Level 3 recognition; maintain required structural changes. <i>Target 2a:</i> Achieve four (of seven) quality targets. <i>Target 2b:</i> Achieve two (of three) patient experience targets. <i>Target 3a:</i> Achieve inpatient admissions reduction targets. <i>Target 3b:</i> Achieve ER visit reduction targets.	Maximum: \$7.50 (capped at \$6.00 for Medicare FFS) Base: \$5.50 <i>Target 2a:</i> +\$0.50 <i>Target 2b:</i> +\$0.50 <i>Target 3a:</i> +\$0.50 <i>Target 3b:</i> +\$0.50
Performance Year Two <i>Target 1:</i> Achieve NCQA PPC®-PCMH™ Level 3 recognition; maintain required structural changes. <i>Target 2a:</i> Achieve at least four (of seven) quality targets, or achieve at least six (of seven) quality targets. <i>Target 2b:</i> Achieve two (of three) patient experience targets. <i>Target 3a:</i> Achieve inpatient admissions reduction targets. <i>Target 3b:</i> Achieve ER visit reduction targets.	Maximum: \$8.75 (capped at \$6.00 for Medicare FFS) Base: \$5.50 <i>Target 2a:</i> If min. four of seven +\$0.50, If min. six of seven, +\$0.75 <i>Target 2b:</i> +\$0.50 <i>Target 3a:</i> +\$1.25 <i>Target 3b:</i> +\$0.75

(continued)

Table 5-6 (continued)
Rhode Island: PMPM payment rates to Rhode Island CSI practices under developmental contracts

Developmental stage, targets	PMPM payments
Performance Year Two-A <i>Target 1:</i> Maintain NCQA PPC®-PCMH™ Level 3 recognition; maintain required structural changes. <i>Target 2a:</i> Achieve at least five (of seven) clinical quality measures and testing of any new measures. <i>Target 2b:</i> Achieve four (of six) patient experience targets. <i>Target 3a:</i> Achieve inpatient admissions reduction targets. <i>Target 3b:</i> Achieve ER visit reduction targets. <i>Target 4:</i> Manage high-risk patients and report on transitions of care and nurse care manager metrics.	Maximum: \$8.75 (capped at \$6.00 for Medicare FFS) Base: \$5.50 <i>Target 2a:</i> +\$0.50 <i>Target 2b:</i> +\$0.50 <i>Target 3a:</i> +\$0.50 <i>Target 3b:</i> +\$0.50 <i>Target 4:</i> +\$1.25

NOTE: The PMPM payment amounts do not reflect the 2 percent reduction in Medicare payments that began in April 2013 as a result of sequestration.

CSI = Chronic Care Sustainability Initiative; ER = emergency room; FFS = fee-for-service; NCQA = National Committee for Quality Assurance; PMPM = per member per month; PPC®-PCMH™ = Physician Practice Connection Patient-Centered Medical Home.

SOURCE: Rhode Island CSI Agreement, Attachment H: Per-Member-Per-Month Payment Grid, Amended April 2014.

To enhance the ability of practices to capitalize on these resources, CSI offered individualized technical assistance, called practice facilitation, through the Brown University Primary Care Transformation Initiative team at Memorial Hospital of Rhode Island. In addition, BCBSRI hosted in-person training and convened key practice staff for monthly videoconferences.

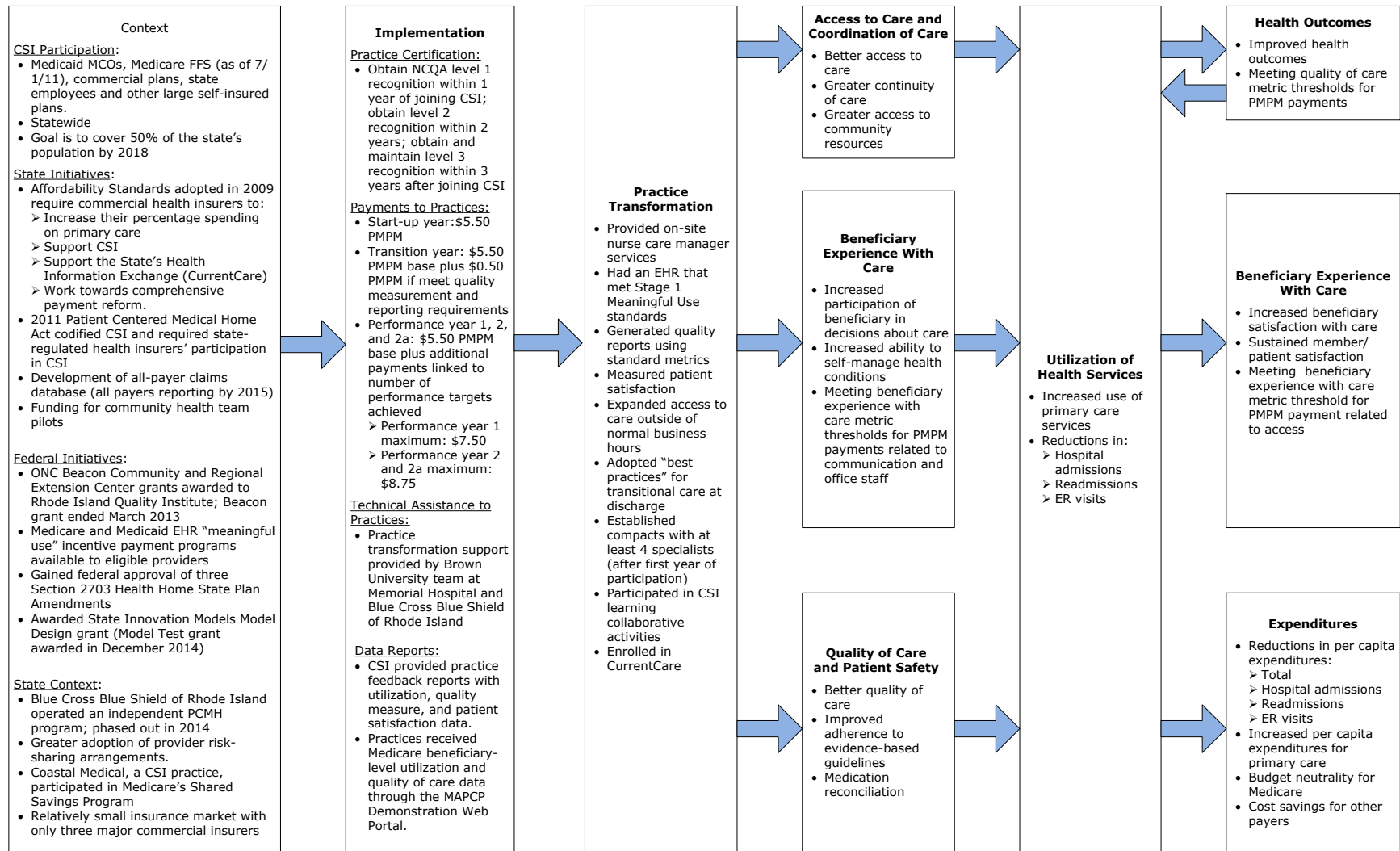
CSI also provided participating practices with performance feedback reports for quality improvement purposes. In the absence of a statewide all-payer claims database, RIQI created data infrastructure to collect and aggregate claims data and calculate all-payer utilization; this information was used for practice-level quality improvement and calculating performance payments. CSI technical assistance in data submission and data analysis supported this effort. In addition, all participating practices enrolled in CurrentCare (the HIE) to share timely admission, discharge, and transfer (ADT) information (and, in some cases, clinical information) with hospitals.

5.1.2 Logic Model

Figure 5-1 is a logic model of CSI depicting the hypothesized relationship between specific elements of the CSI and changes in outcomes. The first column describes the context for the demonstration, including the scope of CSI; other state and federal initiatives that could have affected the initiative; and key features of the state context that could have affected the demonstration. The demonstration context affected the implementation of CSI. Implementation activities were expected to promote transformation of practices to PCMHs, reflected in care processes and other activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher-quality care, as well as to have better

experiences with care and to be more engaged in decisions about treatments and management of their conditions, as shown in the fourth column. These improvements were, in turn, expected to promote more efficient utilization of health care services, as shown in the fifth column. These changes in utilization were expected to produce further changes, shown in the final column, including improved health outcomes, improved beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for the Medicare program and cost savings for other payers. Improved health outcomes, in turn, were expected to reduce utilization further.

Figure 5-1
Logic model for the Rhode Island CSI



CSI = Chronic Care Sustainability Initiative; EHR = electronic health record; ER = emergency room; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; MCOs = managed care organizations; NCQA = National Committee for Quality Assurance; ONC = Office of the National Coordinator for Health Information Technology; PCMH = patient-centered medical home; PMPM = per member per month.

5.1.3 Implementation

This section uses primary data gathered from Rhode Island site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 5.1*.

Major changes during the evaluation period. During the course of the MAPCP Demonstration, CSI increased its focus on high-risk, high-cost patients. During Year Three, payers provided practices and their nurse care managers with lists of their high-risk, high-cost members who could be targeted for care management and additional support services. This shift in focus was driven in part by payers' increasing desire to target patients with the greatest opportunity for cost savings; however, this shift caused tension between payers and some providers, who felt that there was less attention to population health management and management of chronic disease—the initial focus of CSI. Further, as practices worked with high-risk, high-cost patients, they recognized the prevalence of behavioral health needs among this population and the importance of behavioral health care integration. CSI formed a Behavioral Health Integration Workgroup, which consisted of a diverse group of stakeholders, including behavioral health experts from CSI practices, hospitals, the state, and other organizations. Beginning in 2014, CSI expanded the requirement for compacts with specialists to require compacts with behavioral health care providers to facilitate communication and care transitions. Further, in 2014 Tufts Health Plan contributed \$125,000 toward an Integrated Behavioral Health Pilot, which supported integrated behavioral health practice facilitation coaching in 15 primary care practices, development of a centralized behavioral health directory, and development of a program to increase patient self-care management.

Rhode Island also implemented two pilot community health teams (CHTs) to support primary care practices in providing additional services to high-risk patients and patients with behavioral health needs.¹⁰ As CSI's focus shifted toward affecting the health of high-risk patients, initiative leadership continued to make engagement of members of the broader “medical neighborhood,” including hospitals, specialists, behavioral health care providers, and community organizations, a priority.

The number of practices participating in CSI grew in each year during the evaluation. In addition to an increase in the number of MAPCP Demonstration practices in October 2012, CSI expanded by 20 practices in October 2013 and 25 practices in October 2014. The expansions in 2013 and 2014 were part of Rhode Island's 5-year strategic plan, which aimed to expand CSI by at least 20 new practices annually. While these practices were not part of the MAPCP Demonstration and did not receive payments from Medicare, the expansion represented a significant increase in the reach of the program. Finally, in October 2014, CSI became a formally incorporated nonprofit organization and changed its name to CTC.

Major implementation issues during the evaluation period. Practices' low utilization of the state's HIE, CurrentCare, was an ongoing challenge during the evaluation period. CurrentCare offered practices access to hospital ADT notifications, lab results, and pharmacy

¹⁰ The two pilot CHTs were not supported financially by Medicare.

data. Despite this, practices were reluctant to use CurrentCare because it did not contain information on a critical mass of patients, a result of the state's opt-in enrollment model. Patient participation and practices' use of CurrentCare increased slowly over time, however.

Another challenge noted by both practices and CHTs was the lack of clear data to identify high-risk, high-cost patients—a focus of CSI in Year Three of the demonstration and a requirement for practices in Performance Year Two-A of the developmental contract. Even though payers provided lists of their high-risk members, each payer used its own algorithm to identify these members. Practices expressed concern that payers did not use a uniform definition of high-risk patients. One practice noted that, without underlying criteria to define high-risk patients, “It would be hard to deliver services in a way that made sense and would be impactful.” Practices and CHTs felt the usefulness of these lists was limited. CHT and practice staff felt that some patients identified by payers on these lists were inappropriate for intervention, while others whom they believed would benefit were not on the lists. CSI recognized these concerns; in 2014, CSI worked with seven practices to create a common definition of high-risk patients. This definition was used to develop high-risk patient registries and metrics for reporting nurse care manager activities with high-risk patients. CSI rolled this out to other practices in 2015.

External and contextual factors affecting implementation. CSI enjoyed stable political and stakeholder support, despite changes in leadership. Over the course of the MAPCP Demonstration, increasing numbers of health systems and providers entered into risk-sharing arrangements, such as accountable care organizations (ACOs), with commercial payers and Medicare. Some CSI practices participated in ACOs, and interviewees felt that CSI played an important role in preparing these practices to take on risk. In 2013, the state also received a SIM Initiative Model Design award, which provided resources to develop and refine its State Health Care Innovation Plan. Rhode Island's SIM plan built its future delivery system on multi-payer ACOs. While the SIM plan envisioned layering future health care reforms on top of the state's strong PCMH foundation, stakeholders questioned how CSI fit into and could be sustained through these broader reforms.

5.1.4 Lessons Learned

Several lessons emerged from our evaluation of CSI implementation. First, state officials felt that engaging stakeholders, including payers and providers, in the development and refinement of CSI was key to building commitment and inspiring confidence in the initiative. For example, this commitment was apparent during the negotiations for higher PMPM payments in the developmental contract, which were smooth rather than contentious. Second, CSI greatly benefited from the passage and subsequent renewal of Rhode Island's Affordability Standards through 2018, particularly the requirements for commercial payers to invest in primary care and support CSI. Many interviewees felt that these standards would go a long way in supporting CSI's sustainability after the end of the MAPCP Demonstration.

Third, state officials noted the importance of engaging the whole medical neighborhood, including hospitals, specialists, behavioral health care providers, and community organizations, to affect both health outcomes and costs outside of primary care. In 2012, state officials, payers, and provider associations all identified the lack of hospital participation in ongoing initiative planning and implementation activities as a weakness of CSI. Although OHIC made hospital

engagement a priority in both 2013 and 2014, some interviewees felt the business incentives for hospitals still favored filling inpatient beds and increasing ER utilization over changing business models to align with the goals of CSI. State efforts to engage other members of the medical neighborhood largely continued through SIM, the CHT pilots, and the Behavioral Health Integration Workgroup. A broad range of interviewees identified the importance of making behavioral health care integration a priority in delivery system reform initiatives. Generally, they felt that CSI practices had made progress in addressing integration, but lamented that behavioral health care integration was not a focus earlier. Finally, some stakeholders, notably payers, felt that PCMH was an important foundation to support other delivery system and payment reforms, but it was not their end goal. Once a strong primary care infrastructure had been established, some payers sought to implement other payment reforms, such as shared savings or other risk-based contracts. One state official noted, “We should have been more aggressive in contracting to go to shared savings rather than [sticking] with PMPM incentives.”

5.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the demonstration and patients’ awareness of these changes, drawing on data from our focus groups and our three site visits (*Section 5.2.1*). We then present practices’ experiences using technical assistance provided as part of the demonstration (*Section 5.2.2*) and practices’ views on the payment model used in this demonstration (*Section 5.2.3*), drawing on data from our site visits. Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (*Section 5.2.4*). We then synthesize the site visit and survey findings in *Section 5.2.5*.

5.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. Practices were required to reach NCQA PPC®-PCMH™ Level 1 recognition during their first year in CSI and Level 3 recognition before the start of their third year of participation. By the end of Year One of the MAPCP Demonstration in Rhode Island, all participating practices had received NCQA PPC®-PCMH™ Level 3 recognition. Although none had NCQA PPC®-PCMH™ recognition before joining CSI and few had EHRs, most of the initial cohort of practices reported that they were already functioning as a PCMH, at least in terms of providing enhanced access, offering weekend and evening hours, and, for some, offering same-day appointments. A common sentiment was reflected in the comments of one practitioner: “Our practice was already doing many of the practice requirements before it joined CSI. The only change was that we had to document it for NCQA recognition.” As CSI expanded to include more practices, additional practices gained NCQA Level 3 recognition status. By 2014, the last CSI practice in the MAPCP Demonstration achieved 2011 NCQA PCMH Level 3 recognition; all others had achieved recognition by 2013.

Increasing care coordination was a central focus in nearly every practice, which was supported by the requirement for all practices to hire a nurse care manager. Initially, nurse care managers focused on processes of care, such as using pre-visit planning or checklists, post-visit summaries, reminders to have laboratory tests done before the visit, and more comprehensive screening assessments as part of the visit. A greater emphasis on team management had emerged by Year Two. Several practices supported the team structure by designing and using team conference rooms, holding team meetings to review data, and having daily team huddles to

review the patients coming in and the services they needed. Consistent with direction from payers and CSI administration, in Year Three practices increasingly focused their care coordination efforts, and nurse care managers' activities specifically, on high-risk patients. In some areas of the state, CSI practices began to collaborate with new pilot CHTs to address the needs of high-risk patients.

In Year One, many practices found it challenging to acquire, review, and use quantitative data to improve performance. This typically involved using registry-type data to monitor quality metrics for diseases (e.g., diabetes, hypertension) and to monitor compliance with recommended screenings for depression, tobacco and alcohol use, and cancer. By Year Two, practices were using data more consistently, particularly to guide performance improvement projects targeted at improving performance relative to benchmarks. Larger practices, practices affiliated with an ACO, and practices with access to specially trained staff devoted to data analysis used data more extensively. Although the use of data to guide practice improvement continued in Year Three, the most dramatic change was the increased emphasis in all practices on ensuring that nurse care managers had the necessary information to identify and prioritize high-risk patients. In Year Three, practices used data to identify patients with frequent admissions or frequent ER visits, including lists provided by the various payers and, where possible, near-real-time reports from hospitals on patients seen in the ER or just discharged. Practices found it challenging, however, to use payer-generated lists to identify high-risk patients and understand their needs. Because they were based on older data, payer lists might miss patients with the greatest current needs. Further, each payer used its own criteria to identify high-risk patients, which made it difficult for practices to triage patients and manage the lists.

The emphasis on high-risk patients led to a greater focus on patient transitions from the hospital and improved communication between practices and hospitals. In Year One, communication between practices and hospitals was inconsistent and consisted mainly of faxes and telephone calls. By Year Three, practices were notably more proactive in ensuring that they knew which patients were recently discharged and in calling them or arranging visits within days of discharge to improve care coordination. Several practices noted improved communication with hospitals about patients who had been discharged or were approaching discharge. Nonetheless, practices mentioned challenges in determining who should have primary responsibility for managing patients' transition from the hospital. They described the many parties potentially involved, including their own resources (the practice nurse care manager), hospital resources (discharge nurse coordinators and social workers), and community resources (including CHT resources for practices working with CHTs).

Behavioral health emerged as an important focus in Years Two and Three with the recognition of the high prevalence of behavioral health problems among high-risk and high-cost patients. The interviewed practices all had arrangements to screen for depression (a CSI quality metric) and established mechanisms to provide care for patients with behavioral health problems, but there was wide variation in the capacity to provide care on-site and to integrate behavioral health care with the PCMH. In Year Three, all practices were required to develop a compact with behavioral health care providers, and several practices described efforts to increase access to those providers, such as through referral relationships and colocation. A shortage of behavioral health care providers, however, posed an ongoing barrier to behavioral health care integration.

Practice staff found the process for receiving initial NCQA PPC®-PCMH™ recognition to be challenging. One practice lead characterized it this way: “It is bureaucracy and nothing else... You could do all of the things they ask for in Level 3 [NCQA PPC®-PCMH™ recognition], but take really poor care of your patients.” By Year Three of the demonstration, however, most practices coming up for renewal of their NCQA PCMH recognition status did not seem daunted by this requirement. At some practices, nurse care managers had major responsibility for the NCQA PPC®-PCMH™ application, and practices complained that the burdensome requirements diverted nurse care managers from hands-on patient care.

Practice staffing changes. All practices were required to have at least one embedded nurse care manager, and a portion of the payments practices received was earmarked for the nurse care manager’s salary. Nurse care managers were widely viewed as a key driver of CSI’s success: “The nurse care manager seems to be the special sauce for this program, and seems to be generating dividends more than we thought.” The incorporation of nurse care managers was the main practice staffing change in the first year of the demonstration. In Year One, practices typically used the nurse care managers for care coordination, medication reconciliation, and patient education, as well as for creating required quality metric reports and completing their NCQA PPC®-PCMH™ recognition application.

Over the second and third years, practices considered how to use staff so they could work at the top of their license and developed new roles in support of the PCMH. The addition of new staff freed nurse care managers from some of the administrative activities that consumed much of their time in Year One. Although a few practices reported adding medical assistants (MAs) to their staff in Year One, almost all interviewed practices in Year Two used MAs extensively. Practices described involving MAs more effectively in conducting previsit planning, reconciling medication, motivational interviewing (e.g., for smoking cessation), arranging consultations, and complying with quality performance measures (e.g., depression screening). As one said, “At our ... CSI meeting yesterday, the medical assistants were talking about the old times, when they used to weigh the patient, open the door, and put the patient in and close the door, and that was it. And now they have 10 to 12 minutes of stuff that they do with the patient before the doctor even gets there.” In Year Three, particularly with the nurse care managers’ greater focus on high-risk patients, the role of MAs continued to expand, and practices added staff to assist with administrative functions, such as scheduling appointments and tracking quality data. The increased presence of MAs also was noted by patients and caregivers in focus groups. One patient said: “They’ve been asking a lot more questions ... the doctor and his assistant It seems to be more in-depth, about putting a picture of what’s been going on with me within the period of time.”

In Years Two and Three, some practices diversified the types of providers on the practice staff. Practices described the value of having staff such as clinical pharmacists, podiatrists, and registered dietitians on site. Several practices mentioned having their staff participate in special training to enhance skills relevant to PCMH goals. For example, some nurses became certified diabetes educators or took courses on asthma management or cardiovascular care. In Year Two, several CSI practices reported using “health advocates” or “patient navigators” to help new patients access community and hospital-based resources.

With the focus on improving behavioral health care integration in Year Two and, especially, Year Three, practices expressed interest in hiring behavioral health care providers or

having these providers colocated in their offices. Some practices had on-site behavioral health specialists available, but these staff were not enough to meet patients' needs. In Year Three, the local hospital coordinating nurse care managers for CSI practices in the South County region hired an advanced practice nurse in behavioral health to manage consultations in the ER and inpatient settings for patients with behavioral health conditions. During the Year Three site visit, one practice noted that the CSI payments were inadequate for hiring new staff to provide behavioral health services or contracting out these services, saying that needs for behavioral health services exceeded available resources. Perhaps because of the constrained resources, in Year Three most practices emphasized colocation rather than having a dedicated behavioral health specialist as part of the practice care team. The hospital also tried to hire a behavioral health care manager, but had difficulty finding the right person.

Health IT. All CSI practices were required to have a functioning EHR. In Year One, all practices interviewed during the site visit were using disease registries, typically generated by the reporting functionality of their EHRs, to identify patients with diabetes, depression, coronary artery disease, and other chronic conditions. The practices agreed that having an EHR facilitated compliance with preventive service requirements (e.g., vaccinations and screenings for cancer, hypertension, depression, or alcohol abuse). Practices were still learning to use their EHRs and were somewhat uncomfortable with them. By Year Two, practices generally were more at ease with their EHRs and used them more effectively. Some practices noted continuing challenges using their EHRs. For example, several practices had to enter laboratory values manually into their EHRs. Other practices changed their EHRs and, as a result, staff had to re-enter data or look in unfamiliar places for existing data. In Year Three, most practices were more comfortable with their EHRs; only one interviewee noted challenges similar to those reported in Year Two. In the MAPCP Demonstration provider survey (described below), 94 percent of participating providers reported a high level of EHR adoption, comparable to the eight-state MAPCP Demonstration average.

The number of practices with Web-based patient portals and patient willingness to use these portals increased over the 3 years of the demonstration. Typically, the portals allowed patients to request medication renewals, review lab test results, and request an appointment. Secure messaging was available on some portals. (For more information, see **Section 5.4.1.**)

Electronic exchange of health information with other providers was a challenge for CSI practices throughout all 3 demonstration years, and practices continued to exchange health information with specialists, hospitals, and other providers predominantly by fax. (The exception was practices affiliated with an ACO.) CurrentCare, Rhode Island's statewide HIE, was developed to facilitate the exchange of patient information across providers and facilities, and all CSI practices were required to participate in CurrentCare. Low patient enrollment limited its usefulness to practices, although patient enrollment grew during the demonstration and practices reported using it more frequently over time. Practices did not always consider it efficient to receive information electronically, for example, through functionality facilitated by CurrentCare (using nationally accepted Direct Project standards to exchange secure clinical information between two entities). One provider commented, "There's one paragraph, buried in 12 pages, that comes from the hospital's EHR, about what actually happened, with no clarity on the most relevant pieces of information."

Patient awareness of PCMH. From a patient and caregiver perspective, practices' transformations into PCMHs were observed at many levels. While most focus group participants had not heard of the term "patient-centered medical home," many consistently observed the emergence of PCMH features, such as increased use of EHRs at their providers' offices and the availability of same- or next-day office appointments. Once the PCMH concept was explained to focus group participants, most indicated that receiving care from one would be beneficial. As one participant said: "If everybody's involved in your situation, it's kind of like a brainstorm type thing... If they're all working together, it could just really be a lot more beneficial to everybody." Focus group participants also thought being part of a PCMH could enable them to receive specialist care more quickly and in a coordinated fashion.

Some focus group participants had concerns about specific aspects of the PCMH model. For example, some participants felt that the electronic record-sharing aspect of a PCMH could violate patients' privacy or that doctors might be too busy to complete the additional tasks required in a PCMH.

Patient awareness of practice changes. Focus group participants described several types of changes that had occurred recently at their provider practice. The most frequent observation across all groups was the increased use of EHRs and providers' ability to transfer records electronically. Participants noted additional recent changes related to the use of EHRs, such as access to post-visit summaries and lab results through a patient portal and use of electronic prescribing. Most focus group participants knew about their PCP's patient portal. Of those who knew about the patient portal and used it, most found it to be very advantageous. Patients and caregivers shared a variety of ways that they used the patient portal. One person cited the benefit of being able to refer to the post-visit summary posted on the portal: "I went back on the portal a couple of days later because I forgot what the doctor had said, and it was in the summary." A few people who had tried to use the portal stated that it was "difficult to use." There was no common reason among the few focus group participants who were aware of the portal, but did not use it.

Focus group participants reported new roles for practice staff and new types of staff as another recent change. Examples included having more front-desk staff to complete paperwork or help patients with referrals to specialists, the increased role of MAs in asking questions or measuring vital signs, having staff responsible for reviewing and reconciling patients' medications, and the availability of a pharmacist or nutritionist for consultations. Several focus group participants described being asked screening questions related to fall risk and depression as another recent change.

Focus group participants also discussed recent improvements in accessibility and coordination of care. The availability of same-day or next-day appointments with a clinician at the PCP's office was new to many focus group participants. Several participants noted the additions of nurse practitioners (NPs) and physician assistants (PAs), most often to see patients in urgent care situations. Several focus group participants noted that they see an NP or PA most often for a same-day visit, but usually they have appointments with their regular physician. Most people were satisfied with this arrangement, saying, for example: "We're comfortable with that, because we trust the staff there to make those judgments." Another person appreciated that the PA in the office would bring in the physician if needed. Only one person, who was in the low-risk Medicare group, was dissatisfied with being asked to see a PA or NP instead of a PCP, even

in an urgent situation. Several participants who received care at a community health center noted that the facility was expanding, but they still could have long wait times for an appointment. Focus group participants also identified better communication between PCPs and specialists about laboratory results, medication lists, and patients' missed appointments.

One person said he received communication from his PCP's office that "they had a new initiative ... that [physicians in the practice organization] would meet like a group and triage the various things that you have and come up with a plan." However, despite reports by practices about staffing changes that fostered team-based care, very few focus group participants observed their providers working as part of a team of clinicians within their practice. When they were referred to other clinical staff, such as diabetes educators or nutritionists, most patients perceived these staff as working independently on their care and not as part of a team.

5.2.2 Technical Assistance

During Year One, Rhode Island used funding from a Beacon Community grant to contract with TransforMED to provide practice transformation support. TransforMED aimed to provide practice coaching and learning sessions tailored to practices' transformation needs based on an online readiness assessment that practices completed. Practice feedback about the utility of TransforMED's assistance was mixed; more advanced practices, in particular, felt that the level of technical assistance was not appropriate to the degree to which the practice already had transformed. In Year Two, practice transformation support transitioned from TransforMED to on-site support through BCBSRI and the Brown University Primary Care Transformation Initiative at Memorial Hospital of Rhode Island. This change was designed to provide practices with home-grown transformation services, rather than contracting out of state.

Practices received in-person assessment and practice coaching, with less group learning than under the TransforMED model. Practices' assessment of the value of this support remained mixed, and few practices reported taking advantage of the one-on-one coaching offered in Years Two and Three. Instead, practices mentioned engaging in learning opportunities provided directly by CSI. CSI project management provided additional technical assistance to practices through monthly meetings for physicians and bimonthly meetings for nurse care managers. These addressed topics such as optimizing care transitions. CSI data and reporting subcommittee meetings were perceived as another valuable source of information and support, especially in understanding feedback reports on quality and utilization metrics. In Year Two, CSI introduced a new project—Partners in Best Practice—that allowed new practices to "shadow" an experienced CSI practice.

Practices received aggregated data from CSI through a portal hosted by RIQI that provided practice-specific quarterly dashboard reports with data on the key quality metrics used as performance targets. Practices interviewed in Years Two and Three all reviewed and discussed these reports regularly, and all practices seemed to value these dashboard reports above other data sources. Practices increased their use of data over time, and, by Year Three, all practices said they actively used both quality-related and utilization data to monitor their performance and identify areas needing improvement. In addition to the CSI dashboard reports, some larger practices reviewed quarterly reports summarizing utilization metrics for Medicare beneficiaries, which were available through the MAPCP Demonstration Web portal. Smaller practices typically were unaware of the data or did not access the portal to obtain the data.

Although practices also reviewed data provided by payers, the practices found these less useful because the data typically were not current and required the review and integration of multiple sources.

5.2.3 Payment Supports

CSI practice support payments were designed to cover the salary of the nurse care manager and other practice transformation costs. Beyond paying for nurse care managers, practices reported using the payments for a wide variety of purposes, for example, to hire physician aides, or simply to support the “bottom line.” This broad use of CSI payments continued over all 3 years of Rhode Island’s demonstration. Through the years, a few practices employed various methodologies to incentivize provider behavior using CSI payments. In Year Two, for example, a large practice began providing financial incentives to individual providers if they met CSI quality benchmarks or if a department as a whole met benchmarks. These incentives, however, were perceived as too small to have much impact. In Year Three, eight MAPCP Demonstration practices received funding under CSI’s Partners in Best Practice program, which offered practices \$500 to apply toward an activity that would help the practice meet a CSI- or PCMH-related practice goal. Practices used these funds for continuing staff education or to partner with other CSI sites to build staff capacity and share PCMH implementation best practices.

In all 3 years, practices viewed the CSI funding as both valuable and essential, but insufficient for the ideal operation of a PCMH. Interviewees at practices frequently identified shortages in key staff, including nurse care managers, data managers, health IT support staff, and behavioral health care support staff. As one interviewee said, “Most of our money goes to buying nurse care managers, but we need a lot more nurse care managers than we have.” Although practice payments increased somewhat with the introduction of the developmental contract, practices continued to view CSI funding as insufficient for the ideal operation of a PCMH.

5.2.4 Practices’ Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level of adoption, and one representing a high level of adoption of the activity. Survey findings presented in **Table 5-7** and **Table 5-8** focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted.

The Overall Practice Transformation Index reported in **Table 5-7** is the percentage of activities adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities that demonstration providers reported engaging in was comparable to the average percentage across the eight MAPCP Demonstration states, both overall and within five of the six PCMH domains. Overall, Rhode Island providers

reported engaging in 76 percent of PCMH activities at a high level, comparable to the eight-state average (72%). The share of care coordination activities that Rhode Island demonstration providers reported adopting at a high level was significantly higher (78%) than the eight-state MAPCP Demonstration average (68%).

Table 5-7
Rhode Island: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in Rhode Island (N = 33 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	76	72
Practice Transformation Index by Domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	80	76
Care management (without involvement of other providers)	79	78
Care coordination (involving other health care providers)	78*	68
Patient engagement and self-management	61	57
Quality improvement	71	76
Health IT	94	93

NOTE: ¹Unweighted average of the state averages for the eight MAPCP Demonstration states.

Health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 5-8 presents the percentage of providers in Rhode Island who reported high-level adoption of particular PCMH activities compared to the MAPCP Demonstration eight-state average. Providers in Rhode Island were similar to the eight-state average for 15 of the 23 PCMH activities. They performed better than the eight-state average for eight activities:

- Providing patient-clinician continuity (91% compared with 74%).
- Focusing a patient's visit around a specific issue, with consistent attention to ongoing chronic care and prevention needs (93% compared with 84%).
- Formalizing the provider's relationships with other health care providers using practice agreements and referral protocols (67% compared with 50%).
- Referring patients in need of behavioral health support or community-based resources to partners with whom the practice has established relationships (80% compared with 64%).
- Following up with patients after they are seen in the ER or hospital (97% compared with 80%).

- Involving patients and caregivers in health care decision making in a prioritized and systematic way (77% compared with 67%).
- Providing patient self-management support for chronic conditions through goal-setting and action planning (77% compared with 57%).
- Using systematic quality improvement approaches (97% compared with 81%).

These results are contextualized and discussed in greater detail in subsequent sections of this chapter.

Table 5-8
Rhode Island: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Rhode Island (N = 33 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to Care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	94	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	88	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings and weekends. The practice actively participates in coordinating ER care and follows up with patients after visits to the ER.	59	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent time frame.	75	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	91*	74
Care Management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	63	59

(continued)

Table 5-8 (continued)
Rhode Island: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Rhode Island (N = 33 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	93*	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	97	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	93	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	80	78
Tracking and follow-up with patients about test results... Is consistently done.	73	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	77	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	67*	50
Patient referral information to specialists, hospitals, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	100	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	80*	64

(continued)

Table 5-8 (continued)
Rhode Island: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Rhode Island (N = 33 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified time frame.	97*	80
Patient Engagement and Self-Management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	55	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	48	51
Involving patients and caregivers in health care decision making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and teach-back techniques.	77*	67
Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	77*	57
Quality Improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	97*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	83	79

(continued)

Table 5-8 (continued)
Rhode Island: Percentage of respondents reporting a high level of adoption
of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Rhode Island (N = 33 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Health IT (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	94	93

NOTE: ¹Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

5.2.5 Discussion of Practice Transformation

Practice transformation became increasingly sophisticated over the course of the demonstration. The practices viewed their CSI participation less as a finished accomplishment and more as a work in progress. As expressed by a provider in the Year Three site visit, “We’re always learning new lessons; it never stops.” Increasing care coordination was a major focus in all participating practices. Although practices initially relied on their nurse care managers to provide this coordination, their approaches evolved over time to emphasize team approaches to care. Practices brought in new staff and restructured responsibilities to make more effective use of staff capabilities, particularly the nurse care managers, whose time was sometimes consumed by administrative functions in Year One. This increased focus on care coordination and team-based care is reflected in the care coordination domain of the provider survey, in which Rhode Island practices had a significantly higher score as compared with the MAPCP Demonstration eight-state average. Practices’ communication with hospitals also increased over time, improving their ability to coordinate care for patients transitioning from a hospital stay.

Practices’ capacity to exchange and use data also developed over time, although it remained a challenge for many practices. Timely receipt of information on patients seen in the ER or who were hospitalized was a significant problem in Year One and Year Two. While information exchange had improved by Year Three, it was still mostly not done electronically, and slow enrollment in the statewide HIE contributed to challenges with electronic exchange of health information among providers. Practices’ capacity to analyze and use data to guide care improvement varied considerably.

Participating practices were universally enthusiastic about CSI and felt their participation in the initiative advanced their ability to provide high-quality, patient-centered, team-based care. This enthusiasm was sustained throughout the first 3 years of the MAPCP Demonstration. Although the PCMH payments were never considered adequate to support all their practice

transformation efforts, practices expressed concern about what would happen if PCMH payments ended, and, in the Year Three site visits, none had a clear idea of how they would continue to support nurse care managers and other investments in practice transformation.

5.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 5.3.1*); impacts on utilization of services and clinical quality (*Section 5.3.2*); and a synthesis of these findings (*Section 5.3.3*).

5.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

At the initiative level, CSI required reporting on quality measures, with the expectation that practices would improve quality of care, patient safety, and health outcomes. At the practice level, patients reported practices' attention to patient safety and patient education.

First, CSI required practices to report quality measures derived from their EHRs on a quarterly basis. Practices submitted the measures through a Web portal. The quality metric data submitted by the practices were compiled, and a dashboard report with comparative performance data was shared with the practices through the portal. The quality measure reporting requirements changed somewhat over the course of the MAPCP Demonstration evaluation period for various reasons, including harmonizing them with other initiatives in the state and retiring measures no longer considered clinically valid or showing practice performance averages close to 100 percent. In addition to providing feedback to practices on their performance on these measures relative to other CSI practices, performance on a subset of the reported quality measures was one criterion for performance-based payments to CSI practices eligible for these payments (see "Support to practices" in *Section 5.1.1*).

Quality-related performance payments were based on meeting performance target thresholds in the final quarter of the previous contract year. To receive performance payments for quality, practices had to either (1) meet or exceed the target threshold or (2) reduce the distance between their baseline performance and the threshold by at least 50 percent, with a minimum of 2.5 percentage points necessary. The threshold for each quality measure increased each year to encourage continuous improvement. *Table 5-9* presents the quality metrics requirements for performance-based payments during the final contract year during the MAPCP Demonstration evaluation period. Quality-based payments for the contract year beginning in April 2014 were based on performance in the final quarter of the previous contract year.

Table 5-9
Rhode Island: CSI performance thresholds for quality metrics for payments in
2014 contract year

Measure	CSI threshold for receiving performance-based payments (% of patients satisfying)
BMI assessment in adults 18 to 64 years of age	57
BMI assessment in adults 65 years of age or older	69
HbA1c control of 8.0% or less in diabetic patients	69
Blood pressure control (< 140/90) in diabetic patients	76
LDL-C control (< 100) in diabetic patients	50
Tobacco cessation intervention	85
Blood pressure control in hypertensive patients (< 140/90)	72

BMI = body mass index; CSI = Chronic Care Sustainability Initiative; LDL-C = low-density lipoprotein cholesterol.

As described in *Section 5.2.4*, the provider survey showed that a significantly higher share of CSI providers (97%) reported a high level of adoption of systematic quality improvement approaches to meet organizational goals, compared with the average for providers across the eight MAPCP Demonstration states (81%). At the same time, the percentage of CSI providers who reported a high level of using formal methods, such as patient surveys or focus groups, to collect patient feedback regularly and incorporate this feedback into practice improvements was comparable to the MAPCP Demonstration eight-state average. These findings are consistent with the focus on reporting and tracking quality metrics described by practice staff during site visits.

Practices found reporting quality metrics for CSI beneficial because they consistently tracked their performance on these measures and focused attention on improving their performance. In the Year Two and Three site visits, most practices reported that they produced their own quality measure data in addition to the data required by CSI. Practices generated reports from their EHRs, showing patients missing recommended preventive services or not meeting measure standards. These reports were used to identify those who would benefit from either additional outreach to schedule an office visit or education at their next in-person appointment. Some practices reviewed quality data in staff meetings, and one used them for one-on-one discussions with physicians whose performance was low. Nonetheless, practices reported that it was more difficult to change health outcomes than it was to make improvements in process measures, as many factors outside of the practices' control (e.g., patient behavior) affect these health outcomes. As one provider emphasized, "We can get a machine to do a fingerstick when they [diabetic patients] walk in the door, but to actually improve that number [HbA1c] is more challenging."

Second, patients reported practices' attention to patient safety and patient education. For example, 84 percent of respondents to the CAHPS PCMH survey indicated that someone from their providers' offices spoke with them at each visit about all the prescription medicines they were taking. This may reflect the presence in all practices of nurse care managers, whose responsibilities included medication reconciliation, care coordination, and patient education.

While having a pharmacist on-site was not a key component of CSI, a few practices reported that they had an on-site pharmacist doing these reconciliations with patients.

Nurse care managers also played a significant role in patient education. Practices reported holding group visits or classes for patients with diabetes or nutrition classes during the site visits in all 3 years. During the Year Three site visit in 2014, however, some interviewees suggested that the focus on identifying and reaching out to patients with high risk or high utilization may have detracted from nurse care managers' ability to engage with other patients about managing their chronic conditions and to improve quality of care.

5.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

CSI was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between CSI and two CGs: PCMHs and non-PCMHs.

- **Table 5-10** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and on one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 5-11** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the MAPCP Demonstration in the likelihood of receiving the service in either Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared with the CG. MAPCP Demonstration beneficiaries are expected to have positive values for all indicators, except the “none” indicator in diabetes care.

Although 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Rhode Island, the process of care indicators were measured at the annual level, so only the first 12 quarters of data for an individual were used.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to MAPCP Demonstration practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following

primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 5-12** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If CSI was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures included all 14 quarters of data.

Table 5-10
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 2,048)	2.62	[-3.77, 9.02]	5.07	[-1.20, 11.34]
Year Two (N = 1,435)	4.91	[-1.40, 11.23]	5.81	[-0.02, 11.64]
Year Three (N = 881)	2.86	[-3.73, 9.46]	7.50*	[0.22, 14.79]
Overall (N = 2,243)	3.43	[-2.82, 9.67]	5.81	[-0.35, 11.96]
Retinal eye examination				
Year One (N = 2,048)	-0.08	[-3.25, 3.09]	0.33	[-2.29, 2.95]
Year Two (N = 1,435)	-2.96	[-5.95, 0.03]	-0.48	[-3.84, 2.88]
Year Three (N = 881)	-7.95*	[-12.02, -3.88]	-6.48*	[-12.10, -0.85]
Overall (N = 2,243)	-2.61*	[-4.83, -0.40]	-1.31	[-3.98, 1.36]
LDL-C screening				
Year One (N = 2,048)	-1.57	[-4.86, 1.71]	0.45	[-3.07, 3.97]
Year Two (N = 1,435)	1.87	[-1.70, 5.44]	3.03	[-0.26, 6.32]
Year Three (N = 881)	-0.20	[-5.07, 4.66]	3.02	[-2.35, 8.38]
Overall (N = 2,243)	-0.16	[-3.42, 3.09]	1.82	[-1.56, 5.19]

(continued)

Table 5-10 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical attention for nephropathy				
Year One (N = 2,048)	-6.33*	[-11.01, -1.66]	1.67	[-5.79, 9.14]
Year Two (N = 1,435)	-8.50*	[-14.38, -2.62]	-2.05	[-9.89, 5.79]
Year Three (N = 881)	-8.58*	[-13.77, -3.39]	-3.00	[-9.77, 3.77]
Overall (N = 2,243)	-7.50*	[-11.26, -3.74]	-0.49	[-7.12, 6.13]
Received all 4 diabetes tests				
Year One (N = 2,048)	-1.18	[-3.89, 1.54]	3.06	[-1.38, 7.50]
Year Two (N = 1,435)	-3.79	[-7.71, 0.13]	-0.83	[-4.98, 3.31]
Year Three (N = 881)	-8.35*	[-14.35, -2.34]	-3.54	[-8.31, 1.23]
Overall (N = 2,243)	-3.48*	[-6.08, -0.89]	0.45	[-2.97, 3.86]
Received none of the 4 diabetes tests				
Year One (N = 2,048)	0.90	[-0.27, 2.06]	-1.46	[-3.14, 0.22]
Year Two (N = 1,435)	-0.33	[-1.52, 0.86]	-1.79*	[-2.95, -0.62]
Year Three (N = 881)	0.21	[-1.44, 1.86]	-0.71	[-2.49, 1.07]
Overall (N = 2,243)	0.36	[-0.76, 1.47]	-1.42*	[-2.73, -0.10]
Total lipid panel				
Year One (N = 2,635)	1.96	[-0.66, 4.58]	-0.44	[-2.88, 1.99]
Year Two (N = 2,025)	1.49	[-2.50, 5.47]	-0.31	[-2.99, 2.37]
Year Three (N = 1,447)	-2.15	[-5.56, 1.26]	-2.10	[-5.79, 1.59]
Overall (N = 3,242)	0.83	[-1.83, 3.49]	-0.79	[-3.13, 1.54]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CSI = Chronic Care Sustainability Initiative; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, there was little evidence that CSI impacted the likelihood of complying with the process of care measures. The few significant results mostly were not in the expected direction, and there were inconsistencies in the statistical significance across CGs. Specifically, **Table 5-10** shows that:

- The *overall* likelihood of receiving a **retinal eye examination, medical attention for nephropathy** or **all four diabetes tests** decreased among Medicare CSI beneficiaries compared to Medicare beneficiaries assigned to PCMH comparison practices only.

- The *overall* likelihood of receiving **none of the four diabetes tests** decreased among Medicare CSI beneficiaries compared to Medicare beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, or total lipid panels.

Table 5-11
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing					
Year One	495	0.39	[-4.36, 5.14]	11.20*	[3.24, 19.17]
Year Two	313	-5.41	[-12.73, 1.91]	4.42	[-2.30, 11.14]
Year Three	210	-0.16	[-7.27, 6.95]	5.46	[-5.27, 16.19]
Overall	650	-1.51	[-4.95, 1.94]	7.93*	[2.23, 13.63]
Retinal eye examination					
Year One	495	-24.00*	[-36.39, -11.60]	1.84	[-3.91, 7.58]
Year Two	313	-11.31*	[-21.73, -0.90]	-2.51	[-14.27, 9.25]
Year Three	210	-17.41	[-35.96, 1.15]	-1.59	[-8.18, 5.01]
Overall	650	-18.74*	[-29.72, -7.75]	-0.21	[-6.13, 5.72]
LDL-C screening					
Year One	495	0.00	[-6.27, 6.28]	4.30	[-1.45, 10.05]
Year Two	313	8.06*	[1.89, 14.23]	9.92*	[2.58, 17.25]
Year Three	210	-6.39	[-14.55, 1.77]	4.94	[-5.20, 15.07]
Overall	650	1.16	[-5.09, 7.42]	6.16*	[0.30, 12.01]
Medical attention for nephropathy					
Year One	495	-2.85*	[-4.69, -1.02]	-3.27	[-8.30, 1.76]
Year Two	313	-10.95*	[-17.86, -4.03]	-5.48	[-11.34, 0.39]
Year Three	210	-4.65	[-10.57, 1.27]	-1.33	[-5.87, 3.21]
Overall	650	-5.71*	[-8.81, -2.61]	-3.55	[-8.03, 0.93]
Received all 4 diabetes tests					
Year One	495	-12.07*	[-23.52, -0.61]	4.20	[-2.17, 10.57]
Year Two	313	-7.52	[-18.25, 3.22]	0.32	[-14.22, 14.87]
Year Three	210	-23.32*	[-41.09, -5.55]	-1.86	[-11.83, 8.12]
Overall	650	-12.99*	[-24.36, -1.61]	1.76	[-5.77, 9.28]
Received none of the 4 diabetes tests					
Year One	495	-1.04	[-3.14, 1.06]	-0.34	[-2.08, 1.39]
Year Two	313	-0.30	[-3.33, 2.73]	0.13	[-2.04, 2.31]
Year Three	210	-0.76	[-2.68, 1.16]	-0.97	[-3.36, 1.42]
Overall	650	-0.76	[-2.45, 0.93]	-0.33	[-1.77, 1.12]

(continued)

Table 5-11 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Breast cancer screening					
Year One	2,132	0.52	[-5.17, 6.20]	3.85	[-0.04, 7.74]
Year Two	1,310	-1.06	[-5.04, 2.92]	3.06	[-0.48, 6.60]
Year Three	815	-0.23	[-4.63, 4.16]	1.88	[-2.43, 6.19]
Overall	2,493	-0.11	[-3.33, 3.11]	3.23	[-0.07, 6.53]
Cervical cancer screening					
Year One	10,042	-2.54	[-8.62, 3.55]	-0.31	[-3.18, 2.55]
Year Two	6,297	-4.11	[-9.06, 0.85]	-1.56	[-4.50, 1.39]
Year Three	3,421	-0.47	[-3.19, 2.25]	0.00	[-1.89, 1.89]
Overall	11,042	-2.68	[-7.72, 2.36]	-0.66	[-3.26, 1.95]
Antidepressant medication management: 12 weeks					
Year One	1,215	4.55	[-1.49, 10.59]	0.96	[-2.46, 4.38]
Year Two	750	-8.43	[-17.98, 1.12]	-2.76	[-7.35, 1.83]
Year Three	491	-1.99	[-5.28, 1.30]	1.55	[-3.71, 6.81]
Overall	1,998	-0.72	[-5.56, 4.12]	-0.06	[-2.65, 2.53]
Antidepressant medication management: 6 months					
Year One	1,215	11.80*	[7.85, 15.74]	DNC	DNC
Year Two	750	-6.55	[-18.19, 5.08]	DNC	DNC
Year Three	491	-6.42	[-13.38, 0.55]	DNC	DNC
Overall	1,998	2.55	[-1.14, 6.24]	DNC	DNC
Appropriate use of asthma medications					
Year One	761	6.22*	[0.53, 11.91]	-0.54	[-6.71, 5.63]
Year Two	453	-2.75	[-9.11, 3.62]	2.97	[-1.84, 7.79]
Year Three	279	-3.18	[-12.47, 6.11]	4.07	[-6.56, 14.70]
Overall	1,047	1.74	[-2.69, 6.17]	1.39	[-3.76, 6.53]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; DNC = regression model did not converge; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Similar to Medicare beneficiaries, among adult Medicaid beneficiaries we found little evidence that CSI impacted the likelihood of complying with the process of care measures, and there were inconsistencies in the statistical significance across CGs. Specifically, **Table 5-11** shows that:

- The *overall* likelihood of receiving **HbA1c testing** or **LDL-C screening** increased among adult Medicaid CSI beneficiaries compared to adult Medicaid beneficiaries assigned to non-PCMH comparison practices only.
- The *overall* likelihood of receiving **retinal eye examinations**, **medical attention for nephropathy**, or **all four diabetes tests** decreased among adult Medicaid CSI beneficiaries compared to adult Medicaid beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of receiving none of the diabetes tests, breast cancer screening, cervical cancer screening, appropriate antidepressant medication management, or the appropriate use of asthma medication.

Table 5-12
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 7,921)	0.73	[-0.82, 2.28]	0.10	[-0.99, 1.19]
Year Two (N = 9,670)	0.56	[-1.13, 2.24]	0.64	[-0.61, 1.90]
Year Three (N = 10,498)	1.83*	[0.07, 3.58]	1.56	[-0.16, 3.27]
Overall (N = 13,636)	0.95	[-0.57, 2.46]	0.85	[-0.29, 1.99]
PQI admissions—overall ²				
Year One (N = 7,921)	-1.51	[-3.66, 0.65]	0.56	[-0.91, 2.03]
Year Two (N = 9,670)	-0.57	[-2.55, 1.41]	2.46	[-0.56, 5.47]
Year Three (N = 10,498)	-1.43	[-3.75, 0.90]	1.72	[-1.17, 4.61]
Overall (N = 13,636)	-0.80	[-2.46, 0.85]	1.38	[-0.63, 3.40]
PQI admissions—acute ³				
Year One (N = 7,921)	0.02	[-0.83, 0.86]	0.27	[-0.48, 1.01]
Year Two (N = 9,670)	-0.35	[-1.25, 0.55]	0.34	[-0.66, 1.34]
Year Three (N = 10,498)	0.04	[-0.96, 1.04]	0.37	[-0.57, 1.30]
Overall (N = 13,636)	0.03	[-0.61, 0.68]	0.32	[-0.21, 0.86]

(continued)

Table 5-12 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 7,921)	-1.55	[-3.11, 0.01]	0.23	[-0.93, 1.39]
Year Two (N = 9,670)	-0.15	[-1.84, 1.54]	2.09	[-1.06, 5.23]
Year Three (N = 10,498)	-1.44	[-3.29, 0.41]	1.41	[-1.14, 3.96]
Overall (N = 13,636)	-0.80	[-2.19, 0.59]	1.07	[-0.77, 2.91]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare CSI beneficiaries, there were no statistically significant *overall* differences observed in the rates of avoidable catastrophic events or PQI inpatient admissions (overall, acute, or chronic).

5.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

CSI emphasized tracking and reporting quality metrics data, and practices received performance-based payment for achieving certain thresholds on a set of quality of care measures, including several measures of care for patients with diabetes. Practices considered tracking these measures to be helpful for improving their performance, and, by the Year Three site visit, many

practices said they augmented the data required for CSI with their own quality measures. This emphasis was confirmed by the provider survey, in which nearly all CSI providers reported using systematic quality improvement approaches to meet organizational goals, significantly higher than the average for the eight MAPCP Demonstration states. Despite this focus, we found little evidence of improvements in processes of care for either Medicare or Medicaid beneficiaries and no evidence of improvements in health outcomes for Medicare beneficiaries. Indeed, compliance with processes of diabetes care for Medicare and Medicaid beneficiaries declined relative to PCMH practices. There was more promising evidence of improvement in processes of care relative to the non-PCMH CG, particularly for Medicaid beneficiaries where there were improvements in two diabetes-related measures—HbA1c testing and LDC-C screening. Although estimates for these measures for Medicare beneficiaries relative to the non-PCMH CG generally were not significant, the signs were always consistent with improvements in compliance, and the estimate for the third year of the demonstration showed a significant increase in the likelihood of HbA1c testing.

It is notable that the two diabetes-related measures where there were significant improvements in the Medicaid population were both related to metrics used to determine quality-related performance payments. This suggests that CSI's focus on quality improvement may have had some positive impacts. During site visits, CSI practices described a variety of efforts to increase recommended screening for patients with diabetes, such as offering in-office HbA1c testing, addressing self-management skills, and conducting group visits. However, the benefits of this focus on quality improvement did not seem to generalize beyond the measures used for performance-based payment. The lack of improvement in health outcomes for Medicare beneficiaries is not surprising given the absence, for the most part, of improvement in processes of care. It is also consistent with comments from CSI providers about the greater challenges in changing patient behaviors and health outcomes, compared with changing care processes. Furthermore, it may be difficult to find significant associations with relatively rare events, such as the preventable hospitalization measures, given the fairly small population enrolled in CSI practices.

5.4 Access to Care and Coordination of Care

This section describes the changes practices made aimed at improving access to care and the coordination of care (*Section 5.4.1*), impacts on access to care and coordination of care (*Section 5.4.2*), and a synthesis of these findings (*Section 5.4.3*).

5.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

As the demonstration progressed, practices' emphasis on care coordination and expanding access to care increased. Many of the requirements for the practices to participate in CSI promoted access to care and coordination of care, including NCQA PPC®-PCMH™ recognition, which had several “must pass” elements related to care access and coordination. Other requirements (see “Practice expectations” in *Section 5.1.1*), which increased with the length of a practice's tenure in CSI, included creating and implementing after-hours protocols, complying with best practices for care transitions, achieving a minimum score on the “Access”

domain of the PCMH CAHPS (described in **Section 5.5**), and developing compacts with high-volume specialists.

Nurse care managers. As mentioned, all CSI practices had at least one embedded nurse care manager (see “Practice staffing changes” in **Section 5.2.1**). Nurse care managers served as the main care coordinators within a CSI practice, and, throughout the demonstration, stakeholders consistently identified nurse care managers as key to improving accessibility and coordination of care. A central responsibility of nurse care managers was facilitating care transitions for patients recently seen in the ER or discharged from the hospital. In addition, the few focus group participants (described in **Section 5.5**) who said they worked with a nurse care manager in their PCP’s office most commonly reported receiving diabetes care education. The focus group participants who had experience with a nurse care manager were all either enrolled in Medicare or dually enrolled in Medicare and Medicaid.

Coordination with hospitals. Care coordination with hospitals was a major focus of CSI practices and became more streamlined over time. At the time of our provider survey, nearly all Rhode Island providers (97%) reported that they routinely followed up with patients seen in the ER or hospital after receiving notification, significantly higher than the eight-state MAPCP Demonstration average (80%). Particularly in Years One and Two, however, variability in communication between hospitals and practices about patients seen in the ER or discharged from the hospital was noted as a barrier to promoting care coordination. Practices found hospital discharge information and notifications of ER visits untimely and challenging to use. By Year Three, practices did not mention concerns about poor communication with local ERs, and more real-time ADT communication from hospitals supported nurse care managers’ ability to follow up with patients after discharge.

In Year Three, practices described additional initiatives to enhance care coordination with hospitals. Examples of these initiatives included real-time messaging between a practice’s physicians and ER physicians through smartphone technology, embedding a nurse care manager from an ACO with multiple CSI practices in two hospitals to track and monitor the ACO’s admitted patients, and having a practice physician dedicated to being a full-time hospitalist. Greater use of CurrentCare also improved care coordination, as more patients enrolled in it and more practices and practitioners used it to access patient-level data. Providers in Rhode Island reported more patient-clinician continuity during hospital stays than other states; in the provider survey, a significantly higher share of participating Rhode Island providers (91%) reported assigning patients to a specific clinician or care team and monitoring their care during hospital and post-acute facility stays, as compared with the eight-state MAPCP Demonstration average (74%). Focus group participants provided positive feedback about their providers’ coordination with hospitals. Most participants who had been hospitalized reported that their PCP was aware of their recent hospitalization. Some focus group participants said that their PCP even met them at the ER or hospital. Several high-risk Medicare participants indicated that they received calls from their PCP’s office on the day after their hospital discharge. All other participants noted that their PCP asked about their recent hospitalization during their next office visit.

Coordination across complex patient needs. Practice staff interviewed during site visits reported that nurse care managers focused on complex patients with multiple comorbidities and complex psychosocial needs. One physician at a CSI practice described the nurse care manager

as the “red carpet to the practice” for complex and vulnerable patients. As reported in our provider survey, a significantly higher share of participating providers (93%) reported a high level of adoption of PCMH activity related to organizing patient visits around a specific reason with consistent attention to ongoing chronic care and prevention needs, compared with the eight-state MAPCP Demonstration average (84%).

Access. Practices expanded office hours and telephone access throughout the demonstration. During the Year One site visits, a few practices said that they had expanded office hours and telephone access after they joined CSI. Some practices, particularly smaller practices, struggled with providing after-hours access. In Year Two, a few practices further expanded their hours to include evenings and weekends, but some practices found it challenging to fund extended hours and get their providers to work on weekends and late in the evening. To avoid the financial and staffing burdens of after-hours care, one smaller practice developed a relationship with a nearby urgent care clinic to provide after-hours and weekend care to its patients. In Year Three, practices reported that they had already extended office hours and, in contrast to Year Two, practices did not report difficulty in scheduling providers to work on weekends and evenings. One practice indicated that, although it expanded hours to include Sunday and evenings earlier in the demonstration, it discontinued these extended hours because of the low volume of patients seeking services at these times. Seventy-four percent of CAHPS PCMH survey respondents, who were all age 65 and over, said they usually or always got answers to medical questions when calling their practice after office hours. However, patient perceptions of limited access during these times persisted; although 77 percent of CAHPS PCMH survey respondents indicated that their provider’s office had given them information on what to do if they needed care outside of normal business hours (e.g. evenings, weekends, or holidays), only 64 percent were usually or always able to get the care they needed from their provider’s office during evenings, weekends, or holidays. The provider survey fielded in Year Three may reflect this experience more than what practices reported during site visits; notably, only 59 percent of providers reported providing after-hours access to patients for their urgent care needs, which did not differ significantly from the eight-state MAPCP Demonstration average.

Patients perceived that providers at their CSI practices were accessible for routine and urgent care. Ninety percent of CAHPS PCMH survey respondents felt that they usually or always got answers to medical questions about which they called their practice during office hours, and 98 percent of CAHPS PCMH survey respondents were usually or always able to get an appointment for routine care as soon as they needed it. For urgent care, 96 percent of CAHPS PCMH survey respondents indicated that they were usually or always able to get an appointment at their provider’s office as soon as they needed it. Most focus group participants echoed this experience getting an appointment with their PCP’s office when needed. As one focus group participant noted, “When you [call], the first thing they say is, ‘Do you need to see a doctor today?’ If the answer is, ‘Yes,’ you do ... Not necessarily your doctor, but somebody who has the computer with access for you.” However, some focus group participants with Medicaid coverage who received care at a community health center reported that it took several months to get their first appointment with their PCP, but after this initial appointment they did not have to wait as long. Few focus group participants had complaints about getting an urgent care appointment.

Wait times. In the CAHPS PCMH survey, 77 percent of the respondents said that their appointment usually or always began within 15 minutes of its scheduled start time. Focus group participants reported varied experiences with wait times to see their PCP when they had an appointment, although there was no consistent pattern according to type of practice or type of insurance coverage. Some people, including one caregiver, reported long wait times of more than 30 minutes. Others felt that their wait times were reasonable, which they defined as less than 30 minutes.

ER use. Despite patient-reported access to care during routine hours and practices' efforts to expand office hours and improve telephone access, practices described challenges changing patients' patterns of ER use throughout the demonstration. Practices had difficulty informing their patients that the practice was open for extended hours. Further, they believed that patients could not always differentiate conditions warranting emergency care from those treatable by their PCP. In the Year Two site visit, one practice group had established triage protocols with ER doctors to encourage referral of practice patients with nonurgent, primary-care-treatable conditions back to the primary care practice. In the 2014 site visit, practices described continuing and enhancing efforts to direct patients to call their primary care physicians before going to the ER. For example, one practice used posters and videos in the waiting room to convey a "call us first" message. Nonetheless, most practices felt that they needed to offer more patient education to encourage patients to call them first rather than visiting the ER.

Patient perceptions of their awareness of alternatives to seeking care at an ER differed from those of providers. Most focus group participants were aware that their PCP's office offered alternatives to help them avoid ER use. Participants said they were informed of these alternatives through notices of extended office hours, on-call services, or the availability of same-day appointments with practice staff; this information was posted in the waiting room or announced on phone system messages. Several dually eligible individuals reported that their PCP urged them to call their office before going to the ER, even in the evenings or on weekends. However, some focus group participants described instances that were true emergencies when they chose to go to the ER. Others shared experiences of going to the ER late at night or on a weekend when their PCP's office was closed, consistent with patient perceptions and provider survey findings indicating limited availability of after-hours care and practice-reported challenges with sustaining after-hours care.

Access to and coordination with specialists. As noted in the beginning of this section and in *Section 5.1.1* "Practice expectations," practices were required to have compacts with specialists. In our survey of providers in CSI practices, a significantly higher share of participating providers reported having formalized practice agreements and referral protocols with practices to which they commonly refer patients than in other states (67% of Rhode Island providers, compared with 50% of providers across the eight MAPCP Demonstration states). Moreover, 88 percent of CAHPS PCMH survey respondents reported that their provider usually or always seemed up to date on the care they had received from specialists. Most focus group participants reported that their PCP was involved with or informed of the care they received from specialists. For example, most participants indicated that their PCP's office made appointments with specialists directly or referred them to a specific specialist so that they did not need to find a specialist on their own. Caregivers, in particular, noted that the PCP office staff's involvement in making specialist appointments on behalf of patients was a recent change. As one caregiver said,

“What I appreciate about my sister’s doctor is that he’s in touch with and always wants to know about what’s going on with the other doctors that she visits.”

Formalized referral patterns evolved among CSI practices over time. In Year One, practices varied in their assessment of whether simply having an agreement with specialists was meaningful for promoting coordination between primary care practices and specialists. In Year Two, some practices reported enhancing their compacts, for example, by establishing arrangements with specialists that allowed them to schedule same-day appointments directly for patients needing urgent care. Another practice group was transitioning its compacts with specialists to contracts that more clearly outlined the expectations for both the PCP and specialists, which the practice considered more robust. In Year Three, practices reported efforts beyond the compacts to increase communication with specialists. For example, one health care center reported developing a portal to be used by specialists to access patient records in its EHR.

During site visits, practice staff noted ongoing concerns about the availability of behavioral health care providers. However, CSI practices did establish relationships across primary care and behavioral health providers. According to the provider survey, 80 percent of Rhode Island providers said they referred patients in need of behavioral health support or community-based resources to partners with whom the practice has established relationships, compared with 64 percent of providers across the eight MAPCP Demonstration states. The significantly higher share of providers referring patients in need of behavioral health support or community-based resources reflects CSI’s growing emphasis on behavioral health care integration and support within practices.

Community-based resources. CSI initially did not include specific components to improve links with community-based resources, and community resources were mentioned rarely in Year One practice interviews. A few interviewees mentioned the possibility of incorporating CHTs in CSI in the future, particularly to support small practices. CHTs were launched in two pilot areas of the state in Year Three. The CHTs offered patients connections to support services, such as social workers and peer navigators, to help meet social and behavioral health needs. CHT staff reported, however, that some PCMH patients whom they contacted refused additional assistance.

Patient portals. Practices increased the adoption and use of patient portals over the course of the demonstration. Typically, these portals allowed patients to request medication renewals, review lab test results, and request an appointment. Secure messaging was available through some portals. In one practice, the portal was accessible through a smartphone app that included several novel health-related tools—for example, tracking weight or exercise levels and tracking mood for patients with depression. In Year Two, practices described considerable variability in their patient portal functionality. Some practices used their patient portal to share disease-specific materials, while others used it simply to allow patients to contact their providers via e-mail or electronic messaging. Some practices were introducing new portal functionality gradually over time to avoid overwhelming the providers. For some practices, patient portal use remained low in Years One and Two. One practice found that it was unable to engage its Spanish-speaking patients in using the portal because it was offered only in English. By Year Three, more practices had activated a Web-based patient portal, and fewer practices noted

challenges encouraging patients to use their portals. Overall, fewer practices noted challenges to encouraging patients to use the portal in Year Three compared with Year Two.

5.4.2 Impacts on Access to Care and Coordination of Care

CSI was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between CSI and two CGs: PCMHs and non-PCMHs.

- **Table 5-13** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care (COC) Index.
- **Table 5-14** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

CSI beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under CSI. These measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. Further, the non-elderly Medicaid adults comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration; a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures included all 14 quarters of data. Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period; thus, Year Three estimates for

primary care visits, medical specialist visits, and surgical specialist visits could not be calculated for Medicaid.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COD Index, which is measured annually, ranges from 0 to 1. CSI beneficiaries were expected to have higher values on the COD Index. Due to limitations in the Medicaid claims data, the continuity of care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COD Index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with CSI in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in either Year One, Year Two, Year Three, or all years. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with CSI in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Although 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, primary care visits as a percentage of total ambulatory care visits and the COD Index were measured at the annual level, so only the first 12 quarters of data for an individual were used. As mentioned previously, provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the

demonstration period; thus, Year Three estimates for primary care visits as a percentage of total visits could not be calculated in the Medicaid analysis.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in *Section 5.4.3*.

Table 5-13
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 7,921)	90.34*	[17.03, 163.65]	26.97	[-33.68, 87.61]
Year Two (N = 9,670)	64.54	[-7.22, 136.31]	16.34	[-54.40, 87.09]
Year Three (N = 10,498)	57.25	[-10.53, 125.04]	20.33	[-63.46, 104.11]
Overall (N = 13,636)	74.58*	[11.74, 137.42]	29.76	[-34.91, 94.42]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 7,921)	6.23	[-32.16, 44.62]	-18.69	[-58.42, 21.05]
Year Two (N = 9,670)	0.29	[-57.50, 58.07]	-5.04	[-58.22, 48.14]
Year Three (N = 10,498)	41.16	[-33.38, 115.70]	-34.01	[-116.85, 48.83]
Overall (N = 13,636)	19.95	[-37.97, 77.86]	-20.19	[-82.14, 41.76]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 7,921)	22.19	[-2.54, 46.92]	15.90	[-8.43, 40.23]
Year Two (N = 9,670)	14.54	[-10.75, 39.82]	14.07	[-9.42, 37.56]
Year Three (N = 10,498)	1.07	[-16.74, 18.88]	0.29	[-13.26, 13.84]
Overall (N = 13,636)	9.00	[-7.29, 25.29]	8.79	[-4.53, 22.12]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 9,794)				
1st quintile	-0.38	[-2.52, 1.76]	-1.98	[-4.69, 0.73]
5th quintile	0.30	[-1.41, 2.02]	1.52	[-0.50, 3.53]
Year Two (N = 7,327)				
1st quintile	-2.16	[-4.68, 0.36]	-1.31	[-3.80, 1.17]
5th quintile	1.46	[-0.19, 3.11]	0.93	[-0.79, 2.65]
Year Three (N = 5,057)				
1st quintile	-1.84	[-4.77, 1.09]	-1.08	[-3.90, 1.73]
5th quintile	1.17	[-0.60, 2.93]	0.71	[-1.09, 2.51]
Overall (N = 10,637)				
1st quintile	-1.30	[-3.46, 0.86]	-1.56	[-4.13, 1.01]
5th quintile	0.88	[-0.64, 2.40]	1.14	[-0.67, 2.95]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,031)	5.34	[-57.80, 68.49]	30.23	[-18.81, 79.28]
Year Two (N = 1,128)	-16.09	[-104.07, 71.89]	-16.96	[-111.73, 77.81]
Year Three (N = 1,216)	68.70	[-63.58, 200.98]	-0.46	[-109.15, 108.24]
Overall (N = 2,866)	18.26	[-64.64, 101.16]	-3.12	[-80.69, 74.46]

(continued)

Table 5-13 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,263)	-30.60	[-76.93, 15.74]	19.04	[-15.77, 53.85]
Year Two (N = 1,441)	-40.35	[-83.36, 2.65]	15.68	[-16.07, 47.42]
Year Three (N = 1,503)	24.58	[-8.04, 57.21]	49.26*	[13.52, 85.00]
Overall (N = 3,557)	-9.33	[-37.96, 19.30]	26.67*	[2.83, 50.52]
COC Index (higher quintile = better COC)				
Year One (N = 10,649)				
1st quintile	-4.18*	[-6.07, -2.29]	-0.80	[-2.02, 0.42]
5th quintile	4.02*	[2.26, 5.78]	0.89	[-0.49, 2.27]
Year Two (N = 8,538)				
1st quintile	-4.13*	[-6.85, -1.41]	-1.36	[-3.41, 0.69]
5th quintile	3.84*	[1.40, 6.27]	1.43	[-0.73, 3.60]
Year Three (N = 5,917)				
1st quintile	-3.07*	[-5.98, -0.17]	-0.70	[-3.08, 1.68]
5th quintile	2.62*	[0.23, 5.01]	0.66	[-1.56, 2.87]
Overall (N = 11,264)				
1st quintile	-3.90*	[-6.09, -1.72]	-0.97	[-2.56, 0.63]
5th quintile	3.63*	[1.72, 5.54]	1.02	[-0.63, 2.67]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 person quarters. Primary care visits as a percentage of total visits and COC are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found evidence that CSI impacted several of the access to care and care coordination measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 5-13** shows that:

- The *overall* rate of **primary care visits** increased among CSI Medicare beneficiaries assigned to PCMH practices.
- The *overall* rate of **30-day unplanned readmissions** increased among CSI Medicare beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- **Continuity of care**, as measured by concentration of visits, increased among CSI Medicare beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, CSI decreased the *overall* likelihood that a demonstration beneficiary's COD Index was in the lowest quintile and increased the *overall* likelihood that the COD Index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, while the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures medical specialist and surgical specialist visits, primary care visits as a percentage of total visits, and follow-up visits within 14 days of discharge.

Table 5-14
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	12,527	0.17	[-2.64, 2.99]	0.37	[-1.24, 1.97]
Year Two	16,831	0.71	[-1.81, 3.23]	0.98	[-1.34, 3.30]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	20,302	0.47	[-1.90, 2.85]	0.71	[-0.93, 2.35]
Medical specialist visits					
Year One	12,527	1.01*	[0.15, 1.88]	1.71*	[0.63, 2.78]
Year Two	16,831	0.02	[-0.86, 0.89]	0.99*	[0.09, 1.89]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	20,302	0.45	[-0.16, 1.06]	1.31*	[0.53, 2.08]
Surgical specialist visits					
Year One	12,527	0.21	[-0.62, 1.04]	0.04	[-0.36, 0.44]
Year Two	16,831	0.39	[-0.29, 1.07]	0.78*	[0.00, 1.55]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	20,302	0.31	[-0.38, 1.01]	0.46	[-0.09, 1.00]
Primary care visits as percentage of total visits (% PC)					
Year One					
% PC < 70%	6,251	3.19*	[0.44, 5.94]	1.84	[-0.45, 4.13]
70% ≤ % PC < 100%		0.19	[-0.77, 1.16]	0.62	[-0.16, 1.40]
% PC = 100%		-3.39*	[-5.93, -0.84]	-2.46	[-5.13, 0.20]
Year Two					
% PC < 70%	2,958	-0.67	[-6.31, 4.97]	2.22	[-1.73, 6.18]
70% ≤ % PC < 100%		0.04	[-0.40, 0.48]	0.53	[-0.81, 1.87]
% PC = 100%		0.63	[-4.62, 5.87]	-2.75	[-7.71, 2.21]
Year Three					
% PC < 70%	N/A	N/A	N/A	N/A	N/A
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A
% PC = 100%		N/A	N/A	N/A	N/A
Overall					
% PC < 70%	9,148	1.95	[-0.70, 4.61]	1.97	[-0.61, 4.54]
70% ≤ % PC < 100%		0.15	[-0.43, 0.72]	0.59	[-0.34, 1.52]
% PC = 100%		-2.10	[-4.72, 0.52]	-2.56	[-5.68, 0.56]

(continued)

Table 5-14 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions					
Year One	1,218	0.96	[-1.39, 3.30]	0.78	[-0.85, 2.40]
Year Two	1,447	0.67	[-1.05, 2.39]	-0.28	[-1.50, 0.95]
Year Three	1,608	-2.87	[-7.98, 2.25]	1.05	[-1.74, 3.84]
Overall	4,263	-1.25	[-4.18, 1.68]	0.50	[-1.02, 2.02]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period; thus, Year Three estimates for primary care visits, medical specialist visits, surgical specialist visits, and primary care visits as a percentage of total visits could not be calculated. The Overall estimate is based on Years One and Two only.
- For 30-day unplanned readmissions, the demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A negative value corresponds to a decrease in the likelihood of events compared with the CG. A positive value corresponds to an increase in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries, we found little evidence that CSI impacted the access to care and care coordination measures, with the exception of medical specialist visits. Specifically, **Table 5-14** shows that:

- Among Medicaid adults, the *overall* likelihood of having **medical specialist visits** increased among CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant overall impacts were observed for the measures of primary care and surgical specialist visits, primary care visits as a percentage of total visits, and 30-day unplanned readmissions.

5.4.3 Discussion of Access to Care and Coordination of Care

Improving access to care and care coordination, particularly through extended hours, compacts with specialists, and activities of the nurse care managers, was described as a major focus of CSI practices in discussions with stakeholders during site visits and was reflected in the provider survey results. Patients and caregivers also shared this perspective; the majority of CAHPS PCMH survey respondents and focus group participants indicated that they had timely access to routine and urgent care. We found evidence of a significant increase in primary care visit rates for Medicare beneficiaries when compared with PCMH CG practices. Although we did not find an increase when they were compared with non-PCMH practices or for Medicaid beneficiaries relative to either CG, all of the estimates had positive signs. Some changes associated with initiatives intended to improve patient access, such as contacts with a nurse care manager or communication through a patient portal, may not be captured as increases in primary care visits, which may explain the absence of significant effects in these comparisons. We did not find evidence of reductions in specialist visit rates for either Medicare or Medicaid beneficiaries. CSI might not be associated with decreases in specialist visit rates, however, if patients lacked adequate access to specialists before the demonstration. Poor access to specialist services is likely to be a greater problem for Medicaid beneficiaries than Medicare, and there was a significant increase in medical specialist visits for adult Medicaid beneficiaries relative to the non-PCMH CG. The required compacts with specialists may have facilitated access to specialist services.

There was no evidence that CSI was associated with increasing post-hospital-discharge follow-up visits, despite the presence of nurse care managers who monitored discharges and the near universal report by providers in the third-year survey that they routinely follow up with patients once they are informed of a hospital discharge. This follow up might not be reflected in claims data if practices mainly contact patients by telephone or e-mail. However, particularly in earlier years, structural issues may have posed barriers to post-discharge follow-up. During site visits, nurse care managers complained about the lack of timely discharge data, although this had improved by Year Three. Low patient enrollment in Rhode Island's HIE, moreover, limited its usefulness for supporting communication between PCMHs and hospitals.

For the Medicare population, CSI practices demonstrated a significant improvement in the COD Index relative to the CG of PCMH practices. Although not significant, the estimates relative to the non-PCMH CG were also in the direction (away from the lowest quintile and toward the highest quintile) consistent with improvement in continuity of care. Improvements in continuity of care might be due to increased availability of appointments at CSI practices offering extended hours on nights and weekends. This finding also could have resulted from compacts with specialists establishing communication back to the PCP after a specialist visit. The compact requirement also may be related to the third-year survey finding that a significantly higher percentage of Rhode Island providers, as compared with the eight-state MAPCP Demonstration average, had formalized agreements and protocols in place with practices to which they frequently referred patients.

5.5 Beneficiary Experience with Care

This section describes the additional changes practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care not described previously related to quality, access, and coordination of care (*Section 5.5.1*); beneficiaries' experiences with key aspects of their care, such as communicating with providers, getting help with self-managing their chronic conditions, and being involved in shared decision-making about treatment (*Section 5.5.2*); and a synthesis of these findings (*Section 5.5.3*). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

5.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

Many of the efforts undertaken by CSI to enhance quality, access, and coordination of care, as described in previous sections, are aimed at improving beneficiary experience with care. In addition, CSI required practices to participate in an annual CAHPS PCMH survey, and eligible practices could qualify for performance-based payments based on their composite scores for the access domain¹¹ and the office staff or communication domains. Target thresholds were based on the median practice result in the preceding year, and, as with the quality metrics, practices that did not meet the target threshold could qualify for the performance payment by reducing the distance between their baseline performance and the threshold by at least 50 percent, with a minimum of 2.5 percentage points necessary. During the Years Two and Three site visits, both state officials and some practices interviewed noted that practices responded to the CAHPS PCMH survey results by focusing staff efforts on making improvements in areas where the survey showed poorer performance.

In Year One, interviews with physicians and office staff in several participating practices indicated that many practices implemented changes intended to improve patient engagement and self-management. Practices reported an increased focus on self-management, through nurse care managers' work, coaching and education from MAs, and the availability of self-management classes. These efforts continued and expanded in Years Two and Three. New features identified in the Year Two site visit included deploying a mobile application offering patients access to the patient portal; providing more auxiliary patient services at the PCMH location (e.g., nutrition classes, physical therapy group sessions, tobacco cessation counseling, and blood tests for cholesterol); and increasing efforts to inform and educate patients about PCMH features by posting signs in waiting rooms. A common theme in interviews with several practices in Year Two was that all members of the care team—MAs, licensed practical nurses (LPNs), nurse care managers, and physicians—were doing their part to focus the patient's attention on self-management goals. In Year Three, practice staff noted that their greater understanding of and comfort with health IT and EHRs led to more effective integration of the electronic resources into patient care, such as printing and distributing patient-specific education materials housed in a patient's EHR.

In the Year One site visits, opinion was divided on the extent to which beneficiary experience with care and patient engagement were addressed at the initiative level. From one

¹¹ The Access domain was not used to determine performance-based payments based on the survey conducted in Year One of the MAPCP Demonstration.

interviewee's perspective, CSI "has not focused enough on what the patient experience is, and it focuses on the practice. It [PCMH] is a cultural issue within the practice; it's an administrative issue within the practice, but it has very little to do with what the patient's experience [is]." Several interviewees noted that there were no patients involved in the governance of CSI. In Year Two, CSI began organizing a patient advisory council to increase patient engagement and guide CSI and practices on implementing PCMH. This was disbanded in Year Three because of the lack of patient participation. In its place, CSI conducted a focus group of approximately 15 patients and patient caregivers to obtain consumer input on elements of CSI, including communication with primary care physicians and office staff, access to providers, care coordination, and perceptions about the PCMH. The patient engagement and self-management index from the provider survey showed that Rhode Island practices undertook activities to engage patients and support patients' self-management goals at rates comparable to the average of providers in the eight MAPCP Demonstration states, although Rhode Island practices showed higher rates of adoption in two of the four categories. Consistent with the emphasis on patient self-management described in site visit interviews, significantly higher shares of Rhode Island providers reported involving patients and caregivers in health care decision making (77%, compared with the eight-state MAPCP Demonstration average of 67%) and setting goals and action planning with patients to encourage self-management support for chronic conditions (77%, compared with the eight-state MAPCP Demonstration average of 57%).

5.5.2 Measurement of Beneficiary Experience with Care

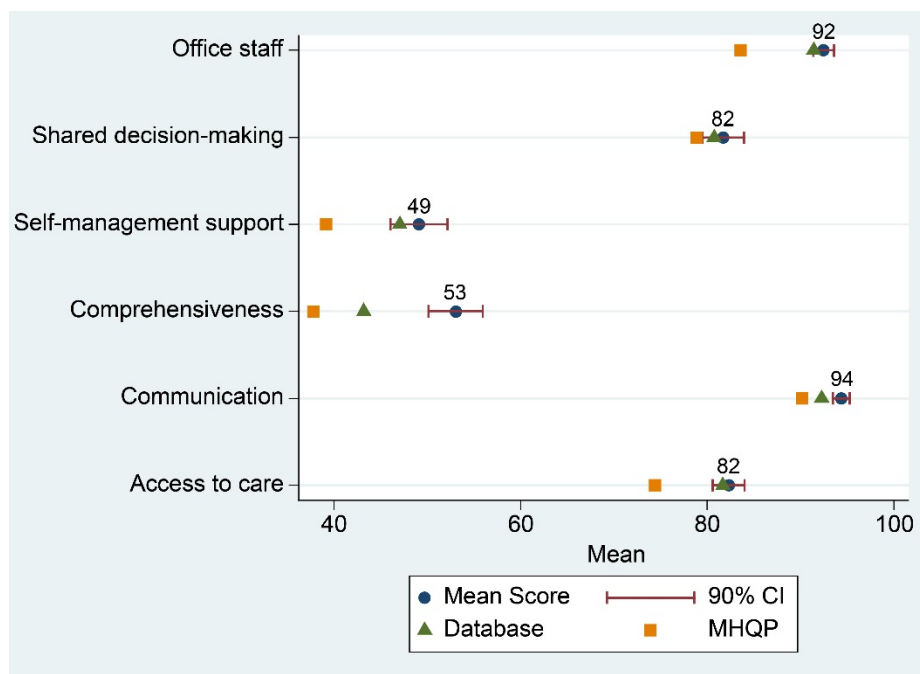
This section reports on how patients perceived their beneficiary experience as part of CSI. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. It should be noted that beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP.
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner.
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems.
- *Self-management support.* Two yes/no questions about goal setting and barriers to care.
- *Shared decision-making.* Three items regarding medication use.
- *Office staff.* Two items about interactions with medical practice office staff.

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 5-2** contains the composite scales of Rhode Island and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.¹² The presented composite scale scores were adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

Figure 5-2
Rhode Island's CAHPS PCMH survey composite measures compared with two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

Rhode Island scored significantly higher than both standards for comprehensiveness and provider communication. The remaining four composite scores for Rhode Island—office staff interactions, shared decision making, self-management, and access to health care—were significantly higher than the MHQP mean, but were not significantly different from the database.

Communication. Patients in CSI practices who responded to Rhode Island's CAHPS PCMH survey and focus group participants both expressed very positive sentiments about communication with providers, although a few contrary views did emerge. Analysis of the CAHPS PCMH survey data shows that CSI practices earned an adjusted score of 94 out of 100 on a multi-question composite scale that measures the quality of communication between

¹² The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The Database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study was the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

patients and providers, including questions related to providers' understanding of patients and effectiveness of communication (**Figure 5-2**).

Provider understands them. Across survey respondents and most focus groups, patients rated their providers highly. Almost all of the CAHPS PCMH survey respondents felt that their providers usually or always knew the important information from their medical history (96 percent) and that their providers usually or always listened carefully to them (97 percent). Most focus group participants indicated that they had positive experiences with their provider, and they felt like partners in their care. Most participants also felt that their provider knew and understood their medical history. Some Medicaid-only enrollees who participated in the focus groups had a shorter-term relationship with their PCP, however, and did not feel their PCP fully knew them or their medical history.

Effectiveness of communication. Again, across survey respondents and focus groups, almost all patients experienced effective communication from providers. Among the CAHPS PCMH survey respondents, almost all felt that their providers usually or always showed respect for what they had to say (99 percent), usually or always explained things in a way that was easy to understand (98 percent), usually or always gave easy-to-understand information in response to their questions or concerns (98 percent), and usually or always spent enough time with them (97 percent). All focus group participants indicated that they had effective communication with their PCPs. For example, participants reported that they felt comfortable asking as many questions as needed to understand a concept.

Many focus group participants also agreed that their PCP listened carefully to their concerns and was responsive. As one Medicaid enrollee said: "That's one of the things I love about my doctor. I mean basically anything I ask for if it's within reason—like if I ask for a specific test or I tell her what's going on—she listens, and if there's something that needs to be done, she does it." Several focus group participants offered examples of their PCP following up with them at home following office visits, specialist visits, lab tests, or hospital stays.

Yet focus group participants indicated that the use of EHRs affected patients' communication and interaction with their provider. As one person described it: "When somebody is tapping on a computer while you're talking to them, it's not quite the same relationship. So, it's something everybody has to get used to."

Access to care. As reported in **Section 5.4.1**, most patients perceived that providers at their CSI practices were accessible for routine and urgent care. In the CAHPS PCMH survey of patients age 65 and over, CSI practices earned a weighted mean composite score of 82 out of 100 on a multi-question composite scale that measures how easily patients can access their primary care practices (**Figure 5-2**).

Care coordination. As reported in **Section 5.4.1**, in CSI, care coordination often was linked with access to care—as care managers helped patients during transitions after hospital discharge—and to access other medical and nonmedical services. Focus group participants observed good communication across their PCP's office, hospitals, and specialists when needed.

Self-management support. Fewer patients experienced support for self-management specifically than experienced a positive relationship with their PCP. On the basis of patients' responses to the CAHPS PCMH survey, CSI practices earned a weighted mean composite score of 49 out of 100 on a multi-question composite scale that assesses the degree to which practices offered patients self-management support (*Figure 5-2*). Many focus group participants reported that their PCPs discussed health issues with them, but the PCPs rarely identified and set specific goals with them. As one participant described discussions about goals, "I think we probably have goals, but we talk about many other things, too, and [I] don't think it's set up as a goal." Although few participants set goals with their provider, more participants in the Medicaid group reported having a discussion about goal setting. One person received a pedometer from her PCP; another set specific weight targets with her PCP; and others set goals for smoking cessation or pain management. Overall, 61 percent of CAHPS PCMH survey respondents had practice staff who talked to them about specific health goals.

Focus group participants shared examples of health management by their PCPs or their provider's office. For example, in many groups, participants reported getting regular blood tests and reviewing the results with their PCP at the next appointment to adjust treatment or discuss behavior change. In addition, participants who received their primary care at a community health center noted with appreciation that they could get "everything under one roof," which made it easier for them to do things to take care of their own health needs.

Although only 36 percent of CAHPS PCMH survey respondents indicated that they had practice staff who talked to them about things that made it hard for them to take care of their health, focus group participants shared examples of their PCPs discussing behavior changes such as losing weight through exercises like swimming, jogging, or going to a gym and making diet modifications. Moreover, some focus group participants reported that these discussions had a positive impact on their activities. According to one participant, "[My provider is] just wonderful in trying to get me to increase my mobility, so I don't seem like a 75-year-old mush." Other participants indicated that they did not feel they received enough help to change their behavior.

Few focus group participants noted that their PCPs made referrals to other services, suggesting that this form of self-management support was less common. Several people received referrals to see a nutritionist, but in some cases the PCP's office did not have contact information for the provider. While several participants were routinely informed about diabetes or weight loss classes, few attended them; those who did attend found the classes helpful.

Shared decision making. CSI practices earned a score of 82 out of 100 on a composite that assesses the degree to which practices engage in shared decision making with patients (*Figure 5-2*). On the CAPHS PCMH survey, 95 percent of respondents reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication, 81 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication, and 84 percent said they were asked what they thought was best for them when talking about starting or stopping a prescription medication. When asked whether they felt that they were partners with their PCPs in making decisions about their care, several Medicare and Medicaid focus group participants felt that their PCP did not take their medication preferences into account and did not trust their judgment about what their body

needed. However, other participants pointed to examples of their PCP changing medications if one was not working for them, or encouraging them to reduce the dose of a medication and monitor their condition to ensure there were no ill effects.

In one focus group participant's words: "Basically, she's my primary because she listens to me. We have good conversations, and she lets me make suggestions and we go with it for a while to see what the results are." A couple of focus group participants noted that their PCP gently persisted in recommending a care plan to which initially they objected, but eventually agreed.

Office staff. CSI practices earned a score of 92 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of receptionists and clerks in a respondent's practice (*Figure 5-2*). This is consistent with focus groups' responses about office staff; most participants reported having positive experiences with the receptionists in their PCPs' offices, using words like "friendly, responsive, efficient, professional, kind" to describe office staff and saying that they felt comfortable calling receptionists to get answers. Many said that office staff knew their patients by name. Overall, on the CAHPS PCMH survey, when asked to give a global rating of their provider, 86 percent of survey respondents gave their provider a rating of 8 out of 10 or higher. More than half (55%) gave their provider the highest possible rating—10 out of 10.

Additional topics covered in the focus groups. The focus groups covered several additional topics, including participants' perceptions of their providers' medical expertise and activities practices implemented to seek patient feedback.

Medical expertise. Generally, participants reported being highly satisfied with their PCPs' medical expertise. Many participants shared examples that demonstrated this, such as their PCPs' familiarity with new techniques and medicine and their ability to diagnose accurately and coordinate across specialists. Several participants noted that their PCPs were extremely thoughtful and avoided prescribing antibiotics or habit-forming drugs if they were not truly needed, or they reviewed their list of medications and removed those that were no longer needed or caused serious side effects.

Patient feedback. As mentioned in *Section 5.4.1*, CSI fielded annual CAHPS PCMH surveys among participating practices, but few focus group participants reported receiving surveys regarding their PCP. Two participants described examples of other opportunities to provide feedback on their primary care practice. One participant was invited to serve on a practice patient advisory council, and another participant noted that her practice, a community health center, offered a place to provide written feedback.

5.5.3 Discussion of Beneficiary Experience with Care

At the initiative level, CSI regularly monitored beneficiary experience using annual CAHPS PCMH surveys, and practice scores on some of the CAHPS PCMH survey domains were among the factors used to determine performance-based payment. Practices appeared to respond to these incentives, focusing on making improvements in areas where the survey showed poorer performance. At the practice level, beneficiary experience of care varied from very positive reports on provider communication and shared decision making, and more mixed reports on the degree to which CSI practices supported self-management.

Both CAHPS PCMH survey responses and focus group discussions indicated high levels of satisfaction with practice communication. This positive experience might be tied to the care coordination taking place in CSI practices. As discussed in **Section 5.4.1**, although very few focus group participants reported working with a nurse care manager, participants shared positive feedback about their provider office's coordination of their care with visits to hospitals and specialists—a role sometimes performed by the practices' embedded nurse care manager. This is consistent with the third-year survey, in which nearly all providers said they routinely follow up with patients after they are discharged from the hospital. Although practices reported that they did not always receive timely notification from hospitals when their patients were admitted, this had improved by Year Three and practices were actively pursuing ways to improve their communication with hospitals.

Although practices adopted a variety of approaches to encourage self-management, including offering on-site resources such as coaching and education, self-management classes, and nutrition classes, patient perceptions of practice activities were more mixed. Practices involved all members of the care team, from MAs through physicians, in efforts to encourage self-management, and a high percentage of providers in the third-year survey indicated that they involved patients in making decisions about their health care and worked with patients to set goals and develop plans to encourage self-management. However, just three-fifths of CAHPS PCMH survey respondents indicated that practice staff talked to them about specific health goals, and few focus group participants said they identified and set specific goals with practice staff. Practices were more successful at promoting shared decision making, with focus group and CAHPS PCMH survey responses indicating that most patients felt that they were partners with their PCPs in making decisions about their care.

5.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Rhode Island expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees' views on the likelihood of these savings materializing (**Section 5.6.1**), impacts on service utilization and expenditures (**Section 5.6.2**), a decomposition of the impacts on expenditures (**Section 5.6.3**), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (**Section 5.6.4**), and a synthesis of these findings (**Section 5.6.5**).

5.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

Rhode Island's MAPCP Demonstration application projected that CSI would reduce hospital admissions related to the respiratory system, circulatory system, and endocrine system, as well as ER visits. Reductions in these services would be consistent with CSI's focus on selected chronic conditions (diabetes, coronary artery disease, and depression). Rhode Island noted in its demonstration application that it was taking a conservative approach to estimating savings for budget neutrality by assuming reductions in only a few categories of service, suggesting that savings might be achieved in a broader set of services. Different effects were assumed for pilot and expansion practices because of the varying maturity of these PCMHs. Over the 3-year demonstration, admissions related to the respiratory system, circulatory system, and endocrine system were projected to decrease by 12 percent in the pilot practices and by 8 percent among the expansion practices. ER services were expected to decline by 15 percent in

pilot practices and 8 percent in expansion practices. The demonstration also was projected to increase office-based evaluation and management (E&M) visits by 6 percent in pilot practices and 5.5 percent in expansion practices, whereas hospital E&M visits would decrease by 9 percent and 6 percent and emergency E&M visits would decrease by 15 percent and 8 percent in pilot and expansion practices, respectively. Rhode Island estimated that Medicare would realize savings of \$1,573,143 over the course of the demonstration and \$27,577 net of payments to practices.

Practices could receive performance-based payments for reductions in hospital admissions and ER visits. Utilization metrics were calculated by RIQI using data from Medicare Advantage plans, Medicaid managed care plans, and the four commercial insurers participating in CSI, but did not include Medicare FFS or Medicaid FFS patients. Unlike the quality and patient experience metrics, utilization metrics were aggregated for cohorts of CSI practices with differing tenures in CSI. CSI practices could receive performance-based payments if they met utilization reduction targets, with reductions measured relative to a group of similar non-PCMH practices. The ER reduction targets were decreased several times after the start of the demonstration, starting at 10 percent and eventually decreasing to 5 percent, because they were judged too ambitious; the inpatient reduction target was always set at 5 percent. Originally practices had to meet both the inpatient and ER reduction targets to receive the utilization performance-based payment, but the developmental contract established separate payment for the two types of service.

During site visits, practices described two main strategies to reduce utilization: (1) using data reports on hospitalized patients to manage care at the hospital or after discharge; and (2) increasing the involvement of the practice nurse care manager or physicians with patients at risk for high utilization. The latter strategy was enhanced by the introduction of CHTs in two pilot areas in 2014.

During the 2012 and 2013 site visits, practices reported that the utilization data received from insurers, hospitals, and CSI were not timely and not as useful as they would have liked. During the 2014 site visit, the timeliness of claims-based utilization data received from payers was still a concern, but practices also reported improvements in data exchange with hospitals. Nonetheless, practices still noted that limited hospital involvement in CSI impeded their ability to affect utilization. Experience was somewhat different in the South County area of the state, where the local hospital was an active participant in CSI and coordinated nurse care manager services for the participating practices. In this region, the hospital worked collaboratively with the practices, sharing data easily and offering its resources as an extension of the primary care practices.

Although the focus on high-risk patients increased markedly in Year Three of the demonstration, practices described challenges using the lists of patients provided by payers (see **Section 5.2.1**). The CHTs only recently had been implemented and had not been operating for long enough to assess whether they would help reduce utilization. One physician noted that the time frame for realizing savings from interventions with high-risk patients with chronic disease was likely to be from 5 to 10 years, longer than the demonstration.

5.6.2 Impacts on Utilization and Expenditures

CSI was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the CSI and two CGs: PCMHs and non-PCMHs.

- **Table 5-15** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.
- **Table 5-16** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in per beneficiary per month (PBPM) expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

- **Table 5-17** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries.
- **Table 5-18** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries.

For Medicare, estimates in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. Not all services identified in the Medicare claims could be readily identified in the Medicaid claims, so we limited the analysis of Medicaid expenditures to total Medicaid, acute-care, ER, specialty care, primary care, prescription drugs, and long-term care expenditures. For Medicaid, the non-elderly Medicaid adults comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables. Because 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures included all 14 quarters of data.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 5.6.5**.

Table 5-15
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 7,921)	0.13	[-50.58, 50.84]	-1.42	[-50.21, 47.38]
Year Two (N = 9,670)	25.89	[-30.49, 82.27]	45.50	[-9.55, 100.55]
Year Three (N = 10,498)	54.01*	[1.30, 106.73]	22.93	[-47.28, 93.15]
Overall (N = 13,636)	36.33	[-10.29, 82.94]	27.44	[-26.12, 81.01]
Overall Aggregate	\$12,383,617		\$9,354,522	
Acute -care				
Year One (N = 7,921)	-24.38	[-60.64, 11.89]	-2.97	[-29.89, 23.95]
Year Two (N = 9,670)	-11.68	[-49.67, 26.32]	16.32	[-15.79, 48.44]
Year Three (N = 10,498)	13.75	[-15.02, 42.52]	23.84	[-7.67, 55.35]
Overall (N = 13,636)	-2.10	[-33.40, 29.21]	13.38	[-12.18, 38.94]
Overall Aggregate	-\$714,439		\$4,562,462	
Post-acute-care				
Year One (N = 7,921)	0.42	[-10.55, 11.38]	-1.33	[-14.66, 12.00]
Year Two (N = 9,670)	14.26	[-0.06, 28.58]	19.36*	[6.11, 32.61]
Year Three (N = 10,498)	9.75	[-2.47, 21.98]	12.70	[-2.46, 27.87]
Overall (N = 13,636)	8.58	[-0.09, 17.24]	11.55*	[0.76, 22.34]
Overall Aggregate	\$2,923,680		\$3,937,949*	
ER visits not leading to hospitalization				
Year One (N = 7,921)	-1.91	[-5.89, 2.08]	-0.91	[-4.59, 2.77]
Year Two (N = 9,670)	-4.30	[-10.31, 1.70]	1.46	[-2.81, 5.73]
Year Three (N = 10,498)	2.09	[-2.03, 6.22]	-0.39	[-5.07, 4.29]
Overall (N = 13,636)	-0.55	[-4.18, 3.08]	0.38	[-3.17, 3.94]
Overall Aggregate	-\$187,788		\$131,122	
Outpatient				
Year One (N = 7,921)	11.11*	[2.25, 19.97]	3.31	[-6.68, 13.30]
Year Two (N = 9,670)	5.62	[-6.24, 17.48]	-1.78	[-13.93, 10.36]
Year Three (N = 10,498)	2.35	[-6.25, 10.95]	-9.31	[-19.94, 1.32]
Overall (N = 13,636)	6.22	[-1.29, 13.73]	-3.00	[-12.31, 6.31]
Overall Aggregate	\$2,120,680		-\$1,021,896	
Specialty physician				
Year One (N = 7,921)	3.98	[-2.23, 10.19]	2.65	[-2.14, 7.45]
Year Two (N = 9,670)	6.87	[-1.13, 14.87]	9.22*	[2.51, 15.93]
Year Three (N = 10,498)	4.19	[-3.01, 11.39]	0.91	[-5.09, 6.91]
Overall (N = 13,636)	4.64	[-1.56, 10.84]	4.00	[-1.30, 9.30]
Overall Aggregate	\$1,581,986		\$1,363,876	
Primary care physician				
Year One (N = 7,921)	3.83*	[0.93, 6.74]	-0.54	[-4.25, 3.18]
Year Two (N = 9,670)	3.58	[-0.28, 7.43]	1.66	[-2.22, 5.54]
Year Three (N = 10,498)	3.26*	[0.09, 6.43]	1.31	[-3.31, 5.92]
Overall (N = 13,636)	3.35*	[0.33, 6.37]	1.25	[-2.60, 5.09]
Overall Aggregate	\$1,142,484*		\$425,023	

(continued)

Table 5-15 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Home health				
Year One (N = 7,921)	3.37	[-3.79, 10.53]	5.80*	[0.97, 10.63]
Year Two (N = 9,670)	2.62	[-2.88, 8.12]	4.01	[-0.36, 8.38]
Year Three (N = 10,498)	5.37*	[0.58, 10.16]	2.98	[-1.34, 7.29]
Overall (N = 13,636)	4.87*	[0.33, 9.41]	4.65*	[0.64, 8.66]
Overall Aggregate	\$1,660,721*		\$1,585,025*	
Other non-facility				
Year One (N = 7,921)	0.12	[-3.35, 3.59]	-1.33	[-4.16, 1.49]
Year Two (N = 9,670)	-0.51	[-2.98, 1.97]	-1.22	[-3.96, 1.51]
Year Three (N = 10,498)	0.52	[-2.94, 3.98]	0.40	[-3.75, 4.56]
Overall (N = 13,636)	0.10	[-2.34, 2.54]	-0.30	[-3.21, 2.60]
Overall Aggregate	\$34,296		-\$103,608	
Laboratory				
Year One (N = 7,921)	-2.22	[-6.17, 1.72]	0.22	[-2.85, 3.29]
Year Two (N = 9,670)	-1.44	[-4.12, 1.25]	-0.18	[-2.44, 2.08]
Year Three (N = 10,498)	0.20	[-2.63, 3.03]	-1.39	[-4.72, 1.95]
Overall (N = 13,636)	-0.82	[-3.99, 2.34]	-0.28	[-3.11, 2.55]
Overall Aggregate	-\$280,271		-\$95,687	
Imaging				
Year One (N = 7,921)	-0.40	[-2.11, 1.31]	0.24	[-1.09, 1.57]
Year Two (N = 9,670)	0.01	[-2.06, 2.08]	-0.62	[-1.81, 0.56]
Year Three (N = 10,498)	-0.76	[-2.53, 1.01]	-1.89*	[-3.14, -0.64]
Overall (N = 13,636)	-0.20	[-1.81, 1.41]	-0.65	[-1.69, 0.40]
Overall Aggregate	-\$68,743		-\$220,323	
Other facility				
Year One (N = 7,921)	0.54	[-0.25, 1.33]	0.54	[-0.25, 1.34]
Year Two (N = 9,670)	-0.24	[-0.69, 0.20]	-0.21	[-0.65, 0.22]
Year Three (N = 10,498)	-0.14	[-0.42, 0.14]	-0.12	[-0.40, 0.17]
Overall (N = 13,636)	-0.03	[-0.14, 0.09]	0.01	[-0.12, 0.13]
Overall Aggregate	-\$9,258		\$1,739	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary months to date.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found no evidence that CSI decreased total Medicare expenditures. The few significant changes observed showed greater growth. Specifically, *Table 5-15* shows that:

- The growth in *overall aggregate post-acute-care expenditures* was \$3.9 million greater for Medicare beneficiaries assigned to CSI practices compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate primary care physician expenditures* was \$1.1 million greater for Medicare beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate home health expenditures* was \$1.7 million greater for Medicare beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices and \$1.6 million greater compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for acute-care expenditures, expenditures for ER visits not leading to hospitalization, outpatient expenditures, specialty physician expenditures, other non-facility expenditures, laboratory expenditures, imaging expenditures, or other facility expenditures.

Table 5-16
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	12,527	16.10*	[0.64, 31.56]	-0.74	[-13.31, 11.83]
Year Two	16,831	5.09	[-10.33, 20.50]	-3.09	[-21.99, 15.81]
Year Three	19,551	24.33*	[5.54, 43.11]	12.13	[-6.58, 30.84]
Overall	27,402	17.28*	[7.53, 27.03]	3.90	[-6.30, 14.10]
Overall Aggregate		\$9,029,765*		\$2,038,891	
Acute care					
Year One	12,527	15.03*	[4.22, 25.83]	-5.68	[-19.12, 7.76]
Year Two	16,831	9.25	[-13.92, 32.42]	-8.86	[-32.66, 14.95]
Year Three	19,551	0.24	[-19.27, 19.75]	-6.85	[-29.08, 15.37]
Overall	27,402	7.17	[-7.22, 21.55]	-6.76	[-23.73, 10.20]
Overall Aggregate		3,746,416		-\$3,534,719	
ER visits not leading to hospitalization					
Year One	12,527	3.45*	[1.75, 5.14]	1.14	[-0.80, 3.08]
Year Two	16,831	0.01	[-1.23, 1.24]	0.89	[-1.41, 3.20]
Year Three	19,551	1.13	[-1.07, 3.33]	0.45	[-1.89, 2.80]
Overall	27,402	1.04	[-0.17, 2.25]	0.69	[-1.09, 2.46]
Overall Aggregate		\$541,952		\$358,705	
Specialty physician					
Year One	12,527	0.64	[-0.66, 1.94]	0.09	[-0.84, 1.02]
Year Two	16,831	1.20	[-0.17, 2.56]	0.99	[-0.08, 2.05]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	20,302	0.95	[-0.08, 1.98]	0.60	[-0.19, 1.38]
Overall Aggregate		\$236,341		\$148,037	
Primary care physician					
Year One	12,527	0.88	[-0.88, 2.64]	0.78	[-0.27, 1.84]
Year Two	16,831	0.38	[-1.43, 2.19]	1.09	[-0.05, 2.24]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	20,302	0.60	[-1.17, 2.36]	0.96	[-0.09, 2.01]
Overall Aggregate		\$147,724		\$237,569	
Prescription drugs					
Year One	12,527	-0.09	[-4.92, 4.74]	1.49	[-1.10, 4.07]
Year Two	16,831	1.30	[-2.53, 5.13]	2.29	[-0.57, 5.16]
Year Three	19,551	6.43*	[0.52, 12.34]	5.72*	[1.75, 9.68]
Overall	27,402	3.49	[-2.17, 9.16]	3.91*	[0.90, 6.91]
Overall Aggregate		1,826,279		\$2,041,233*	

(continued)

Table 5-16 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	N	Adults			
		CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Long-term care					
Year One	12,527	-0.21*	[-0.38, -0.03]	-0.05	[-0.17, 0.06]
Year Two	16,831	-0.08	[-0.16, 0.01]	-0.02	[-0.05, 0.02]
Year Three	19,551	-0.50	[-1.11, 0.11]	0.72	[-0.35, 1.78]
Overall	27,402	-0.21	[-0.55, 0.12]	0.37	[-0.17, 0.91]
Overall Aggregate		-\$112,010		\$192,672	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period, so Year Three estimates for specialty and primary care physician expenditures could not be calculated. The Overall estimate is based on Years One and Two only.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid adults, there was also little evidence that CSI had an impact on Medicaid expenditures, and the few significant changes observed showed greater growth, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 5-16** shows that:

- The growth in *overall aggregate total Medicaid expenditures* was \$9.0 million greater for Medicaid beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate prescription drug expenditures* was \$2.0 million greater for Medicaid beneficiaries assigned to CSI practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for acute-care expenditures, expenditures for ER visits not leading to hospitalization, specialty physician expenditures, primary care physician expenditures, or long-term care expenditures.

Table 5-17
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 7,921)	-3.05	[-9.84, 3.73]	4.37	[-2.04, 10.78]
Year Two (N = 9,670)	-2.58	[-9.80, 4.65]	4.66	[-1.25, 10.56]
Year Three (N = 10,498)	-0.34	[-8.16, 7.47]	2.97	[-5.15, 11.08]
Overall (N = 13,636)	-0.66	[-6.60, 5.29]	4.29	[-1.63, 10.22]
Overall Aggregate	-74		488	
ER visits not leading to hospitalization				
Year One (N = 7,921)	-5.96	[-23.41, 11.50]	-0.49	[-16.09, 15.12]
Year Two (N = 9,670)	-4.69	[-24.49, 15.10]	-2.50	[-21.25, 16.26]
Year Three (N = 10,498)	-6.16	[-22.35, 10.02]	-7.19	[-24.69, 10.31]
Overall (N = 13,636)	-5.01	[-21.21, 11.19]	-4.11	[-21.23, 13.01]
Overall Aggregate	-570		-467	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary quarters to date.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A negative value corresponds to a decrease in the rate of events compared with the CG. A positive value corresponds to an increase in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found no evidence that CSI practices changed the utilization. Specifically, **Table 5-17** shows that no statistically significant *overall* impacts were observed among beneficiaries for all-cause admissions and ER visits not leading to hospitalization.

Table 5-18
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	12,527	0.39*	[0.13, 0.65]	-0.02	[-0.29, 0.26]
Year Two	16,831	-0.09	[-0.35, 0.18]	-0.22	[-0.53, 0.09]
Year Three	19,551	-0.10	[-0.34, 0.15]	-0.04	[-0.32, 0.23]
Overall	27,402	0.03	[-0.11, 0.17]	-0.09	[-0.30, 0.11]
Overall Aggregate		52		-161	
ER visits not leading to hospitalization					
Year One	12,527	1.67*	[0.94, 2.39]	0.37	[-0.54, 1.28]
Year Two	16,831	0.32	[-0.50, 1.14]	-0.04	[-1.08, 0.99]
Year Three	19,551	0.60	[-0.70, 1.90]	0.09	[-1.05, 1.24]
Overall	27,402	0.66	[-0.32, 1.64]	0.09	[-0.87, 1.05]
Overall Aggregate		1,157		161	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found no evidence that CSI practices changed the utilization. Specifically, **Table 5-18** shows that no statistically significant *overall* impacts were observed among adult beneficiaries for all-cause admissions and ER visits not leading to hospitalization.

5.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories that are analyzed across all eight MAPCP Demonstration states, we also analyzed categories that Rhode Island specifically expected to be affected by the demonstration, as noted in its demonstration application. This

analysis is limited to Medicare data. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 5-19** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between beneficiaries assigned to CSI practices and two CGs: PCMHs and non-PCMHs. **Table 5-19** contains measures of expenditures for hospital professional services, ER professional services, and office/home visits, as well as specific categories of utilization expected to be affected by the demonstration: hospitalizations for conditions related to the respiratory, circulatory, or endocrine systems; E&M office visits; E&M hospital visits; and E&M ER visits. Details on these measures can be found in **Appendix D**. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data. A *negative* value corresponds to *lower growth* in expenditures, while a *positive* value corresponds to *greater growth*. Utilization estimates in this table are interpreted as the difference in the rate of utilization associated with the MAPCP Demonstration per 1,000 beneficiary quarters. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG. Estimates are presented overall for all quarters of the demonstration.

Table 5-19
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI Practices vs. CG PCMHs		CSI Practices vs. CG Non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 13,636)	0.13	[-2.37, 2.62]	1.92	[-0.58, 4.41]
ER professional expenditures Overall (N = 13,636)	0.01	[-0.61, 0.64]	0.08	[-0.59, 0.75]
Office/home visit expenditures Overall (N = 13,636)	7.11*	[1.20, 13.03]	1.11	[-5.33, 7.54]
Hospitalizations for respiratory system conditions Overall (N = 13,636)	-0.63	[-2.20, 0.95]	-0.19	[-1.12, 0.74]
Hospitalizations for circulatory system conditions Overall (N = 13,636)	-0.24	[-1.67, 1.19]	0.37	[-0.94, 1.68]

(continued)

Table 5-19 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI Practices vs. CG PCMHs		CSI Practices vs. CG Non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospitalizations for endocrine system conditions Overall (N = 13,636)	-0.89	[-2.02, 0.24]	0.07	[-0.54, 0.68]
E&M visits (office) Overall (N = 13,636)	108.70*	[19.68, 197.73]	13.98	[-62.40, 90.36]
E&M visits (hospital) Overall (N = 13,636)	-0.10	[-0.24, 0.04]	0.03	[-0.06, 0.12]
E&M visits (ER) Overall (N = 13,636)	-17.21	[-50.78, 16.36]	-9.85	[-45.09, 25.39]

NOTES:

- Expenditures for hospital professional, ER professional, and office/home visits are PBPM. Expenditure estimates are interpreted as the difference in the rate of growth in expenditures compared with the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Hospitalizations for respiratory, circulatory, and endocrine conditions; office/home visits; E&M inpatient visits; and ER professional are rates per 1,000 beneficiary quarters.
- Estimates for the last six outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. The demonstration period for this report includes 14 quarters, and all 14 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; CSI = Chronic Care Sustainability Initiative; E&M = evaluation and management; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found little evidence that CSI impacted any of the targeted expenditure or utilization outcomes. However, there was evidence that ambulatory visits and expenditures increased relative to the PCMH CG. Specifically, **Table 5-19** shows that:

- The *overall* growth in **office/home visit expenditures** was greater for Medicare beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices.

- The *overall* estimate indicated that CSI increased the rate of **E&M office visits** for Medicare beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for hospital professional expenditures, ER professional expenditures, hospitalizations for circulatory system conditions, hospitalizations for endocrine system conditions, E&M hospital visits, or E&M ER visits.

5.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Rhode Island relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics—gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, while net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in **Table 5-15** from **Section 5.6.2**. (See **Appendix C** for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from **Table 5-15**. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Since net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP fees. Positive net savings estimates denote that either there were gross losses or the MAPCP fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 5-20 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 14 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 5-20
Rhode Island: Estimates of gross savings, fees paid, and net savings and return on fees:
Relative to PCMH comparison beneficiaries

	Gross savings	90% confidence interval		Fees	Net Savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	−\$11,092	−\$4,271,475	\$4,249,291	\$438,939	−\$450,030	−\$4,710,413	\$3,810,352	−0.03
Year Two	−\$2,499,732	−\$7,943,388	\$2,943,923	\$561,474	−\$3,061,207	−\$8,504,863	\$2,382,449	−4.45
Year Three	−\$5,691,487*	−\$11,246,356	−\$136,617	\$639,393	−\$6,330,880*	−\$11,885,749	−\$776,010	−8.90
Q13–Q14	−\$4,181,306*	−\$7,740,642	−\$621,971	\$335,101	−\$4,516,408*	−\$8,075,743	−\$957,072	−12.48
All Years	−\$12,383,617	−\$28,274,817	\$3,507,582	\$1,974,907	−\$14,358,525	−\$30,249,725	\$1,532,675	−6.27
Relative to non-PCMH comparison beneficiaries								
Year One	\$118,930	−\$3,980,618	\$4,218,478	\$438,939	−\$320,009	−\$4,419,557	\$3,779,539	0.27
Year Two	−\$4,393,363	−\$9,708,951	\$922,225	\$561,474	−\$4,954,838	−\$10,270,426	\$360,751	−7.82
Year Three	−\$2,416,630	−\$9,815,033	\$4,981,773	\$639,393	−\$3,056,023	−\$10,454,426	\$4,342,380	−3.78
Q13–Q14	−\$2,663,458	−\$6,540,254	\$1,213,337	\$335,101	−\$2,998,560	−\$6,875,355	\$878,235	−7.95
All Years	−\$9,354,522	−\$27,614,891	\$8,905,846	\$1,974,907	−\$11,329,430	−\$29,589,798	\$6,930,939	−4.74

NOTES:

- Gross Savings: Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary months observed during the period.
- Fees: Beneficiaries with less than 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- Net Savings: The estimate of gross savings minus the total Medicare fees paid.
- Return on Fees: The estimate of gross savings divided by total Medicare fees paid.

PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims 2011:Q3–2014:Q4.

In the analysis of budget neutrality relative to the PCMH CG, *Table 5-20* shows:

- The MAPCP Demonstration in Rhode Island resulted in an estimated gross loss of \$12,383,617. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$1,974,907, which translates into an estimated net loss of \$14,358,525 for Medicare. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net losses achieved statistical significance in Year 3 and Quarters 13 and 14.

In the analysis of budget neutrality relative to the non-PCMH CG, *Table 5-20* shows:

- The MAPCP Demonstration in Rhode Island resulted in an estimated gross loss of \$9,354,522. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$1,974,907, which translates into an estimated net loss of \$11,329,430 for Medicare. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net losses failed to achieve statistical significance in any individual year of the demonstration.

5.6.5 Discussion of Effectiveness

CSI was expected to reduce inpatient and ER utilization by having nurse care managers embedded in PCMH practices, expanding access to primary care services, increasing the availability of after-hours care, and better managing care transitions. Although increases in office visits were expected to offset some of these savings, overall CSI was expected to reduce expenditures for Medicare and other payers, even after netting out fees paid to practices.

We did not find evidence that CSI was associated with significant reductions in hospital admission or ER visit rates relative to PCMH or non-PCMH comparison practices for either Medicare or Medicaid beneficiaries. Practices reported ongoing challenges in reducing ER utilization because of difficulties in changing patient behavior, as well as poor communication with hospitals when patients showed up at the ER for non-emergency care, although this communication had improved by Year Three. Furthermore, utilization data received from insurers, hospitals, and CSI were not always timely enough to guide care management, and some practices did not have the capacity to analyze and interpret the data they received, although this also had improved by Year Three. The emphasis in Year Three on high-risk patients reflected a desire to focus on populations with the greatest potential for generating utilization reductions, but this shift was still in its early stages, and practices encountered challenges using the information provided by payers to identify the highest-risk patients.

Changes in a few categories of Medicare expenditures for CSI practices may have reflected the focus on care transitions and increasing access to primary care services. CSI practices showed an overall higher rate of growth in expenditures for home health services relative to both the PCMH and non-PCMH CGs. These expenditure increases might have resulted from nurse care managers' facilitation of those services for patients experiencing care transitions. Greater growth in expenditures for primary care physician services, expenditures for office and home visits, and the office E&M visit rate relative to the PCMH CG for Medicare beneficiaries suggests that CSI was associated with increased utilization of primary care services. Although they were not significant, estimates relative to the non-PCMH CG also had positive signs, suggesting increased utilization of primary care. We did not find corresponding evidence of growth in utilization of primary care services relative to either CG for Medicaid beneficiaries. The increases in primary care and office visits for the Medicare population are consistent with projected utilization changes in Rhode Island's MAPCP Demonstration application; these increases, however, were not offset by the expected reductions in inpatient or ER utilization or expenditures for Medicare beneficiaries.

We observed insignificant findings for total expenditures and acute-care expenditures, relative to both PCMH and non-PCMH CGs for both Medicare and Medicaid beneficiaries, with the exception of an increase in total expenditures relative to the PCMH CG for Medicaid beneficiaries. Consistent with our finding of statistically insignificant increases in total Medicare expenditures relative to both the PCMH and non-PCMH comparison practices, the Medicare budget neutrality calculation showed gross losses, even before taking into account demonstration fees paid to CSI practices, but by an amount not statistically significantly different from zero. Although the small number of Medicare beneficiaries in CSI and high variability in medical expenditures likely contributed to the absence of statistically significant findings for expenditures, the absence of change in inpatient and ER utilization rates made it difficult for CSI to achieve savings.

5.7 Special Populations

This section describes any efforts by practices or the overall CSI initiative to target special patient populations (according to our interviews) (*Section 5.7.1*); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization (based on claims data) (*Sections 5.7.2*); and a synthesis of these findings (*Section 5.7.3*).

5.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

During all 3 years of the demonstration in Rhode Island, CSI did not target any subpopulation for special treatment. CSI aimed at comprehensive practice transformation. Although not explicitly identified as target populations, however, two subpopulations emerged for increasing attention from both the CSI administration and individual practices: (1) people identified by payers and practices as being at high risk for unnecessary cost and utilization, and (2) people with behavioral health problems. During the 2014 site visit, all practices noted the enhanced attention to patients appearing on payers' lists of those at high risk for utilization by contacting them between visits and, in some areas, coordinating with the local CHT for outreach and home visits. As described in *Section 5.1.3*, CSI formed the Behavioral Health Integration Workgroup in Year Two and implemented the CHT pilot in two areas in Year Three. Although

the CHTs had difficulty hiring staff to fill positions dedicated to behavioral health care management, the outreach provided by peer navigators and social workers in the CHTs was intended to address both social and behavioral health care needs. In Year Three, CSI also established a committee to develop recommendations for integrating behavioral health care into the PCMH, and one payer approved funds for implementing some of the committee's proposed activities, including coaching for practices on integrating behavioral health care, enhancing a Web-based referral system, and piloting use of Web-based applications for patients' use in accessing virtual behavioral health support. Although other behavioral health initiatives occurred in Rhode Island—such as the Health Homes SPA, which focused on people with severe and persistent mental illness—there was no cross-fertilization between these efforts and CSI.

On the basis of patients' responses to the CAHPS PCMH survey, CSI practices earned an adjusted score of 53 out of 100 on a multi-question composite scale that measures the degree to which practices ask about behavioral health issues (*Figure 5-2*). This composite reflects that:

- 62 percent of respondents said their practice staff asked if they felt depressed.
- 56 percent reported that practice staff talked to them about things in their lives that worried or stressed them.
- 38 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

Focus group feedback also reflected mixed performance on behavioral health care. While many participants reported that their providers asked them depression screening questions either verbally or via a questionnaire, very few focus group participants reported active engagement of their provider with their behavioral health care. Depression screening was one of the CSI quality metrics, and practices interviewed during site visits uniformly indicated that they had protocols to do this. Moreover, focus group participants shared mixed feedback about providers' involvement in coordinating behavioral health care. This patient perspective contrasts with the provider survey, in which 80 percent of providers said they referred patients in need of behavioral health support or community-based resources to partners with whom the practice has established relationships.

5.7.2 Impacts on Special Populations

CSI was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, with behavioral health conditions, with disabilities, or with a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid, or who belong to racial/ethnic minorities).

For these special populations where we find a statistically significant negative association between the Rhode Island MAPCP Demonstration and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 5-21** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 5-22** reports on changes in total Medicaid expenditures for the special populations expected to be affected by the demonstration
- **Table 5-23** reports on changes in expenditures and utilization for disabled Medicaid beneficiaries.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared to the CG, whereas a positive value corresponds to *greater growth* in expenditures compared to the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, and a *positive* value corresponds to an *increase* in the rate of events compared to the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data. For dually eligible beneficiaries, we only examined total Medicare spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending.

- **Tables 5-24 through 5-32** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 5-33 through 5-36** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 5.7.3**.

Table 5-21
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 1,842)	-44.99	[-226.60, 136.62]	-0.26	[-132.23, 131.70]
Year Two (N = 2,030)	6.03	[-158.84, 170.91]	51.38	[-72.31, 175.08]
Year Three (N = 1,927)	119.53	[-9.98, 249.05]	121.48	[-41.29, 284.24]
Overall (N = 2,597)	51.90	[-57.98, 161.78]	82.80	[-29.28, 194.87]
Overall Aggregate	\$3,521,768		\$5,618,600	
Behavioral health conditions only				
Year One (N = 1,789)	-78.98	[-214.69, 56.73]	30.46	[-64.66, 125.58]
Year Two (N = 2,203)	-30.79	[-189.18, 127.60]	25.19	[-80.99, 131.37]
Year Three (N = 2,259)	159.13*	[67.87, 250.39]	89.88	[-26.57, 206.33]
Overall (N = 2,888)	53.52	[-27.40, 134.44]	69.73	[-11.23, 150.69]
Overall Aggregate	\$3,956,479		\$5,155,098	
Disabled beneficiaries only				
Year One (N = 2,800)	-8.05	[-119.30, 103.21]	37.63	[-55.97, 131.24]
Year Two (N = 3,603)	15.00	[-80.59, 110.58]	86.73	[-1.01, 174.48]
Year Three (N = 3,991)	157.84*	[90.44, 225.24]	64.13	[-43.09, 171.35]
Overall (N = 5,364)	86.26*	[24.01, 148.50]	71.72	[-13.33, 156.76]
Overall Aggregate	\$10,648,033*		\$8,853,171	
Dually eligible beneficiaries only				
Year One (N = 2,185)	18.47	[-76.73, 113.68]	34.48	[-55.06, 124.02]
Year Two (N = 2,978)	-57.23	[-160.24, 45.77]	72.07	[-7.10, 151.24]
Year Three (N = 3,329)	48.90	[-12.35, 110.15]	53.35	[-41.16, 147.86]
Overall (N = 4,419)	37.23	[-28.34, 102.80]	71.50	[-7.62, 150.63]
Overall Aggregate	\$3,787,937		\$7,274,669	
Non-White beneficiaries only				
Year One (N = 773)	-191.11*	[-349.24, -32.99]	36.16	[-60.99, 133.30]
Year Two (N = 1,240)	-58.86	[-166.12, 48.39]	152.73*	[45.25, 260.21]
Year Three (N = 1,448)	-24.97	[-118.85, 68.91]	92.09*	[3.74, 180.44]
Overall (N = 1,939)	-49.12	[-127.47, 29.23]	88.28*	[7.89, 168.67]
Overall Aggregate	-\$2,030,102		\$3,648,546*	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary months to date.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we find no evidence that CSI slowed the growth of total Medicare expenditures among any of these groups. Two groups saw statistically significant increases in Medicare expenditure growth, but these results were inconsistent across CGs. Specifically, **Table 5-21** shows that:

- Among **disabled Medicare beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$10.6 million greater for CSI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among **non-White Medicare beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$3.6 million greater for CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts of the CSI on total Medicare expenditures were observed among beneficiaries with multiple chronic conditions, beneficiaries with behavioral health conditions, or dually eligible beneficiaries.

Table 5-22
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only					
Year One	1,774	71.88	[-27.64, 171.40]	5.04	[-21.37, 31.44]
Year Two	1,916	-8.04	[-154.72, 138.64]	-5.08	[-34.24, 24.07]
Year Three	1,748	34.92	[-153.35, 223.20]	19.27	[-18.93, 57.47]
Overall	2,518	31.24	[-116.20, 178.67]	7.44	[-16.58, 31.47]
Overall Aggregate		\$1,951,881		\$464,991	
Behavioral health conditions only					
Year One	1172	74.19	[-86.17, 234.55]	47.21*	[2.47, 91.94]
Year Two	1341	2.27	[-181.24, 185.79]	62.57*	[6.33, 118.80]
Year Three	1295	-22.61	[-126.47, 81.24]	44.76	[-13.12, 102.64]
Overall	1,872	9.41	[-120.08, 138.91]	54.71*	[11.67, 97.75]
Overall Aggregate		\$400,047		\$2,324,776*	
Disabled beneficiaries only					
Year One	2,462	-24.53	[-64.65, 15.58]	14.91	[-17.42, 47.25]
Year Two	2,983	-92.54*	[-123.96, -61.12]	-22.76	[-57.88, 12.35]
Year Three	2,538	-29.34	[-124.97, 66.30]	93.00	[-13.32, 199.33]
Overall	5,075	-41.86*	[-77.70, -6.02]	43.70	[-5.01, 92.40]
Overall Aggregate		-\$2,769,578*		\$2,891,233	
Asthma diagnosis only					
Year One	525	181.61*	[16.37, 346.86]	24.96	[-23.26, 73.17]
Year Two	756	115.34	[-5.60, 236.29]	-25.97	[-79.84, 27.90]
Year Three	856	143.79*	[78.10, 209.48]	17.48	[-56.37, 91.33]
Overall	1,089	109.74*	[37.25, 182.23]	10.06	[-41.54, 61.67]
Overall Aggregate		\$2,780,350*		\$254,966	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries belonging to these special populations, we find no evidence that CSI slowed the growth of Medicare expenditures among any of these groups, with the exception of disabled beneficiaries compared with one of the two CGs. Two special populations saw statistically significant increases in Medicare expenditure growth, but these results were inconsistent across CGs. Specifically, **Table 5-22** shows that:

- Among **Medicaid adults with behavioral health conditions**, the growth in *overall aggregate* total Medicaid expenditures was \$2.3 million greater for CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among **disabled Medicaid adults**, the growth in *overall aggregate* total Medicaid expenditures was \$2.8 million lower for CSI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among **Medicaid adults with an asthma diagnosis**, the growth in *overall aggregate* total Medicaid expenditures was \$2.8 million greater for CSI beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts of CSI on total Medicare expenditures were observed among Medicaid adults with multiple chronic conditions.

As reported in **Table 5-22**, the overall growth in total Medicaid expenditures is lower for disabled adults enrolled in Medicaid and attributed to CSI practices relative to disabled adults enrolled in Medicaid and attributed to PCMH comparison practices. In **Table 5-23**, we demonstrate that the lower growth in Medicaid expenditures is due largely to lower growth in acute-care expenditures and expenditures for ER visits not leading to a hospitalization.

Table 5-23
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for selected
expenditure and utilization measures among disabled Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults		
	N	CSI vs. CG PCMHs	
		Average estimate	90% confidence interval
Total Medicaid expenditures			
Year One	2,462	-24.53	[-64.65, 15.58]
Year Two	2,983	-92.54*	[-123.96, -61.12]
Year Three	2,538	-29.34	[-124.97, 66.30]
Overall	5,075	-41.86*	[-77.70, -6.02]
Overall Aggregate		-\$2,769,578*	
Acute-care expenditures			
Year One	2,462	18.43	[-22.78, 59.64]
Year Two	2,983	-29.96*	[-46.43, -13.50]
Year Three	2,538	-48.97	[-98.01, 0.06]
Overall	5,075	-24.90*	[-43.64, -6.16]
Overall Aggregate		-\$1,647,496*	
ER visits not leading to hospitalization expenditures			
Year One	2,462	9.95*	[6.83, 13.06]
Year Two	2,983	-4.78	[-9.75, 0.19]
Year Three	2,538	-13.00*	[-23.52, -2.48]
Overall	5,075	-7.15*	[-13.34, -0.97]
Overall Aggregate		-\$473,364*	
Specialty physician expenditures			
Year One	2,462	1.53	[-2.63, 5.70]
Year Two	2,983	0.30	[-3.12, 3.71]
Year Three	N/A	N/A	N/A
Overall	4,173	0.85	[-2.70, 4.40]
Overall Aggregate		\$31,139	
Primary care physician expenditures			
Year One	2,462	1.34	[-0.87, 3.54]
Year Two	2,983	0.36	[-1.66, 2.38]
Year Three	N/A	N/A	N/A
Overall	4,173	0.80	[-1.22, 2.82]
Overall Aggregate		\$29,172	
All-cause admissions			
Year One	2,462	0.37	[-1.36, 2.11]
Year Two	2,983	-1.24	[-2.85, 0.36]
Year Three	2,538	-2.00*	[-3.52, -0.48]
Overall	5,075	-1.11	[-2.33, 0.12]
Overall Aggregate		-244	

(continued)

Table 5-23 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among disabled Medicaid beneficiaries: Fourteen quarters of the MAPCP Demonstration

Outcome	Adults		
	N	CSI vs. CG PCMHs	
		Average estimate	90% confidence interval
ER visits not leading to hospitalization			
Year One	2,462	4.04*	[1.47, 6.62]
Year Two	2,983	0.31	[-0.83, 1.46]
Year Three	2,538	-2.09	[-4.56, 0.38]
Overall	5,075	0.05	[-1.20, 1.30]
Overall Aggregate		11	

NOTES:

- Acute-care, ER, primary care, and specialty care expenditure measures are PBPM expenditures.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- All-cause admissions and ER visits not leading to a hospitalization are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For disabled Medicaid adults assigned to CSI practices, **Table 5-23** specifically shows that:

- Among disabled Medicaid adults assigned to CSI practices, the *overall* growth in **acute care expenditures** was \$1.6 million lower compared with disabled adults assigned to PCMH practices.
- Among disabled Medicaid adults assigned to CSI practices, the *overall* growth in **expenditures for ER visits not leading to hospitalization** was approximately \$473,000 lower compared with disabled adults assigned to PCMH practices.

No statistically significant overall results were observed among disabled Medicaid adults assigned to CSI practices for the overall measures of specialty physician expenditures, primary care physician expenditures, all-cause inpatient admissions, or ER visits not leading to hospitalization compared with disabled assigned to PCMH practices.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group is defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the chronic conditions and the CMS-HCC risk category can be found in **Appendix D**. Over the 14 quarters of the demonstration, 21 percent of Medicare beneficiaries (in the demonstration and CGs) fit this profile in Rhode Island. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into CSI (or CG). Over the course of the demonstration, 9 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile.

CSI was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between CSI and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 5-24** reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 5-25** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 5-26** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See **Section 5.3.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data.

Table 5-24
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 691)	7.92	[-1.64, 17.48]	6.37	[-2.36, 15.11]
Year Two (N = 467)	11.23*	[2.03, 20.43]	10.42*	[1.91, 18.93]
Year Three (N = 289)	4.97	[-6.62, 16.57]	9.16	[-3.36, 21.68]
Overall (N = 721)	8.40	[-0.63, 17.43]	8.24	[-0.68, 17.16]
Retinal eye examination				
Year One (N = 691)	-2.18	[-7.47, 3.11]	-5.34*	[-10.64, -0.05]
Year Two (N = 467)	3.78	[-2.13, 9.68]	1.98	[-2.98, 6.95]
Year Three (N = 289)	-7.11	[-14.91, 0.68]	-5.38	[-12.81, 2.04]
Overall (N = 721)	-1.25	[-6.08, 3.59]	-2.99	[-7.14, 1.16]
LDL-C screening				
Year One (N = 691)	-1.27	[-5.95, 3.42]	-2.70	[-7.64, 2.24]
Year Two (N = 467)	8.71*	[1.62, 15.79]	7.67*	[1.35, 13.99]
Year Three (N = 289)	-4.39	[-12.12, 3.35]	-0.35	[-8.30, 7.61]
Overall (N = 721)	1.33	[-3.72, 6.38]	1.12	[-3.95, 6.19]
Medical attention for nephropathy				
Year One (N = 691)	-6.89*	[-13.74, -0.04]	-5.28	[-11.78, 1.21]
Year Two (N = 467)	-7.70*	[-14.11, -1.30]	-4.81	[-12.58, 2.97]
Year Three (N = 289)	-2.04	[-10.92, 6.83]	-8.24*	[-14.83, -1.65]
Overall (N = 721)	-6.18*	[-11.74, -0.63]	-5.72	[-11.44, 0.00]
Received all 4 diabetes tests				
Year One (N = 691)	-0.40	[-4.82, 4.01]	-2.69	[-7.72, 2.34]
Year Two (N = 467)	5.95	[-0.88, 12.78]	2.12	[-3.53, 7.77]
Year Three (N = 289)	-6.55	[-15.43, 2.34]	-7.42	[-16.10, 1.27]
Overall (N = 721)	0.42	[-3.77, 4.61]	-2.08	[-6.63, 2.47]
Received none of the 4 diabetes tests				
Year One (N = 691)	0.89	[-0.47, 2.26]	-0.82	[-3.06, 1.41]
Year Two (N = 467)	-0.37	[-1.49, 0.75]	-3.65*	[-6.20, -1.11]
Year Three (N = 289)	-0.10	[-3.18, 2.99]	-2.00	[-6.03, 2.04]
Overall (N = 721)	0.29	[-0.86, 1.44]	-1.97*	[-3.84, -0.10]
Total lipid panel				
Year One (N = 1,175)	2.80	[-2.10, 7.71]	-0.67	[-4.33, 3.00]
Year Two (N = 826)	2.27	[-4.14, 8.67]	-0.39	[-4.83, 4.06]
Year Three (N = 528)	-2.66	[-9.23, 3.91]	-2.73	[-9.03, 3.58]
Overall (N = 1,349)	1.49	[-3.48, 6.45]	-1.01	[-4.60, 2.58]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries who have diabetes and multiple chronic conditions, we found little evidence that the demonstration impacted the likelihood of complying with the process of care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 5-24** shows that:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **medical attention for nephropathy** decreased among CSI beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.
- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **none of the four diabetes tests** decreased among CSI beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examinations, LDL-C screening, receipt of all four diabetes tests, or total lipid panels.

Table 5-25
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing					
Year One	137	0.68	[-7.04, 8.40]	9.09	[-0.29, 18.47]
Year Two	073	-10.79	[-22.35, 0.76]	7.14	[-6.75, 21.02]
Year Three	063	-8.12	[-16.88, 0.64]	2.20	[-5.31, 9.71]
Overall	172	-4.42	[-10.61, 1.77]	6.98	[-1.13, 15.09]
Retinal eye examination					
Year One	137	-32.73*	[-53.58, -11.88]	0.31	[-12.18, 12.80]
Year Two	073	-21.63	[-45.86, 2.60]	-0.57	[-16.78, 15.65]
Year Three	063	-28.58	[-70.69, 13.53]	1.67	[-13.19, 16.53]
Overall	172	-28.80*	[-47.62, -9.98]	0.39	[-11.21, 11.99]
LDL-C screening					
Year One	137	9.04	[-1.98, 20.07]	1.73	[-2.18, 5.64]
Year Two	073	4.02*	[0.30, 7.74]	4.22	[-0.49, 8.94]
Year Three	063	0.25	[-6.31, 6.81]	2.51	[-2.93, 7.95]
Overall	172	5.67	[-1.79, 13.13]	2.58	[-1.37, 6.52]
Medical attention for nephropathy					
Year One	137	-7.28	[-17.49, 2.93]	-4.85	[-11.12, 1.42]
Year Two	073	-13.62*	[-24.94, -2.31]	-6.38	[-14.30, 1.54]
Year Three	063	-11.27*	[-19.92, -2.63]	-2.53	[-8.68, 3.62]
Overall	172	-9.90*	[-17.54, -2.25]	-4.72	[-9.49, 0.04]
Received all 4 diabetes tests					
Year One	137	11.28	[-10.34, 32.90]	0.85	[-11.92, 13.63]
Year Two	073	-20.36	[-43.39, 2.67]	1.84	[-13.78, 17.45]
Year Three	063	-30.51	[-71.35, 10.33]	3.49	[-17.63, 24.61]
Overall	172	-6.83	[-21.00, 7.35]	1.73	[-10.87, 14.32]
Received none of the 4 diabetes tests					
Year One	137	15.04	[-15.23, 45.32]	2.82	[-4.94, 10.57]
Year Two	073	42.01	[-1.35, 85.38]	11.54	[-10.35, 33.42]
Year Three	063	16.96*	[9.32, 24.59]	-1.07	[-10.45, 8.32]
Overall	172	22.70	[-3.93, 49.33]	4.25	[-3.99, 12.50]
Breast cancer screening					
Year One	352	2.22	[-11.40, 15.84]	-1.46	[-7.50, 4.59]
Year Two	273	-10.43	[-22.40, 1.55]	3.33	[-2.91, 9.57]
Year Three	210	-7.67*	[-15.07, -0.26]	-1.47	[-10.40, 7.46]
Overall	0,420	-4.40	[-14.49, 5.69]	0.10	[-4.74, 4.95]
Cervical cancer screening					
Year One	1,304	-13.44*	[-25.27, -1.61]	-0.70	[-6.16, 4.76]
Year Two	0,955	-15.09*	[-21.03, -9.14]	-2.63	[-7.41, 2.16]
Year Three	647	-2.35	[-9.77, 5.07]	-2.39	[-8.09, 3.32]
Overall	1,421	-11.51*	[-20.05, -2.98]	-1.71	[-6.22, 2.80]

(continued)

Table 5-25 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Appropriate use of antidepressant medications (acute)					
Year One	332	12.76	[-5.22, 30.74]	0.29	[-6.88, 7.45]
Year Two	185	-28.38*	[-45.69, -11.06]	-9.49	[-20.54, 1.55]
Year Three	131	-14.17	[-33.96, 5.62]	-3.90	[-12.71, 4.91]
Overall	488	-4.43	[-10.63, 1.77]	-3.35	[-9.12, 2.42]
Appropriate use of antidepressant medications (continuous)					
Year One	332	14.78*	[2.91, 26.65]	3.27	[-6.06, 12.60]
Year Two	185	-9.14	[-42.59, 24.31]	2.51	[-10.20, 15.21]
Year Three	131	-14.78	[-30.99, 1.43]	-1.86	[-14.23, 10.51]
Overall	488	1.97	[-7.72, 11.67]	2.02	[-6.66, 10.69]
Appropriate use of asthma medications					
Year One	203	11.65	[-5.36, 28.66]	-3.91	[-19.27, 11.45]
Year Two	127	0.60	[-16.20, 17.40]	7.44	[-4.91, 19.79]
Year Three	090	-7.68	[-23.81, 8.44]	10.82	[-9.36, 31.00]
Overall	263	4.16	[-9.13, 17.46]	2.68	[-10.60, 15.95]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period; thus, Year Three estimates for primary care visits, medical specialist visits, surgical specialist visits, and primary care visits as a percentage of total visits could not be calculated. The Overall estimate is based on Years One and Two only.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found some evidence that the demonstration impacted the likelihood of complying with the process of care measures, although there were inconsistencies in the statistical significance across CGs, and the direction of the effects was not in the expected direction. Specifically, **Table 5-25** shows that:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving a **retinal eye examination** or **medical attention for nephropathy** decreased among CSI beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.
- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **cervical cancer screening** decreased among CSI beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, receipt of all four diabetes tests, receipt of none of the diabetes tests, breast cancer screening, appropriate antidepressant medication management, or the appropriate use of asthma medication.

Table 5-26
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 1,842)	-0.62	[-7.16, 5.92]	0.57	[-3.77, 4.90]
Year Two (N = 2,030)	-5.25	[-12.10, 1.61]	-0.10	[-3.91, 3.70]
Year Three (N = 1,927)	3.86	[-0.70, 8.41]	7.80*	[1.47, 14.14]
Overall (N = 2,597)	-1.28	[-6.43, 3.87]	2.85	[-0.72, 6.42]
PQI admissions—overall ²				
Year One (N = 1,842)	-4.46	[-12.49, 3.56]	3.84	[-2.82, 10.50]
Year Two (N = 2,030)	-3.66	[-11.88, 4.56]	11.20	[-1.57, 23.97]
Year Three (N = 1,927)	-5.64	[-15.28, 4.00]	3.81	[-5.90, 13.52]
Overall (N = 2,597)	-3.68	[-9.92, 2.57]	6.19	[-1.90, 14.28]
PQI admissions—acute ³				
Year One (N = 1,842)	0.00	[-3.12, 3.12]	2.42	[-1.09, 5.93]
Year Two (N = 2,030)	-1.16	[-4.87, 2.56]	3.47	[-0.90, 7.84]
Year Three (N = 1,927)	0.37	[-3.55, 4.29]	1.80	[-1.98, 5.58]
Overall (N = 2,597)	-0.30	[-2.83, 2.23]	2.50	[-0.36, 5.37]
PQI admissions—chronic ⁴				
Year One (N = 1,842)	-4.47	[-11.29, 2.35]	1.02	[-4.87, 6.90]
Year Two (N = 2,030)	-2.43	[-10.50, 5.63]	7.29	[-3.11, 17.68]
Year Three (N = 1,927)	-6.88	[-15.83, 2.07]	1.41	[-6.32, 9.14]
Overall (N = 2,597)	-3.59	[-9.41, 2.24]	3.22	[-2.86, 9.30]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare CSI beneficiaries with multiple chronic conditions, there were no statistically significant *overall* differences observed in the rates of avoidable catastrophic events or PQI inpatient admissions (overall, acute, or chronic).

CSI is expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between CSI and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 5-27** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COD Index.
- **Table 5-28** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 5.4.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data.

Table 5-27
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 1,842)	127.12*	[18.84, 235.40]	96.35	[-8.55, 201.26]
Year Two (N = 2,030)	67.90	[-20.75, 156.55]	55.61	[-30.51, 141.72]
Year Three (N = 1,927)	60.03	[-24.69, 144.74]	42.23	[-54.50, 138.96]
Overall (N = 2,597)	86.84*	[10.97, 162.71]	63.65	[-11.86, 139.16]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 1,842)	11.34	[-83.78, 106.46]	-12.63	[-100.80, 75.54]
Year Two (N = 2,030)	-60.92	[-164.96, 43.12]	30.35	[-64.58, 125.28]
Year Three (N = 1,927)	70.73	[-63.29, 204.75]	42.75	[-101.90, 187.39]
Overall (N = 2,597)	17.96	[-81.11, 117.04]	21.08	[-80.73, 122.88]

(continued)

Table 5-27 (continued)
**Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration**

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 1,842)	72.59*	[25.81, 119.36]	44.31	[-2.00, 90.62]
Year Two (N = 2,030)	39.41	[-0.50, 79.32]	26.43	[-13.98, 66.85]
Year Three (N = 1,927)	35.34*	[8.40, 62.27]	23.00*	[1.15, 44.84]
Overall (N = 2,597)	46.33*	[15.99, 76.67]	30.13*	[0.47, 59.79]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 2,234)				
1st quintile	0.11	[-2.25, 2.47]	-1.83	[-4.27, 0.61]
5th quintile	-0.10	[-2.37, 2.16]	1.59	[-0.50, 3.67]
Year Two (N = 1,673)				
1st quintile	-1.85	[-4.69, 0.99]	-1.70	[-4.18, 0.77]
5th quintile	1.53	[-0.76, 3.83]	1.38	[-0.60, 3.36]
Year Three (N = 1,099)				
1st quintile	-1.02	[-3.60, 1.57]	-0.70	[-3.57, 2.17]
5th quintile	0.83	[-1.24, 2.90]	0.56	[-1.70, 2.83]
Overall (N = 2,327)				
1st quintile	-0.79	[-2.97, 1.39]	-1.54	[-3.84, 0.76]
5th quintile	0.65	[-1.25, 2.55]	1.29	[-0.59, 3.17]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 489)	-25.38	[-103.00, 52.24]	13.61	[-69.86, 97.08]
Year Two (N = 473)	-60.20	[-153.86, 33.47]	-5.68	[-116.62, 105.27]
Year Three (N = 473)	93.93	[-47.25, 235.12]	2.77	[-112.90, 118.44]
Overall (N = 1,110)	-2.45	[-86.10, 81.19]	3.07	[-78.94, 85.09]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 628)	-14.23	[-79.08, 50.63]	18.87	[-52.71, 90.45]
Year Two (N = 609)	-65.82	[-134.27, 2.63]	14.64	[-49.15, 78.43]
Year Three (N = 586)	37.19	[-8.66, 83.05]	61.58*	[4.47, 118.69]
Overall (N = 1,383)	-5.74	[-46.53, 35.05]	31.85	[-15.26, 78.96]

(continued)

Table 5-27 (continued)
**Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:**
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better COC)				
Year One (N = 2,503)				
1st quintile	-3.56*	[-5.87, -1.26]	0.08	[-1.13, 1.30]
5th quintile	3.39*	[1.38, 5.39]	-0.09	[-1.47, 1.28]
Year Two (N = 1,885)				
1st quintile	-3.71*	[-7.23, -0.20]	-0.74	[-3.28, 1.80]
5th quintile	3.39*	[0.49, 6.29]	0.79	[-1.89, 3.47]
Year Three (N = 1,259)				
1st quintile	-1.85	[-5.23, 1.54]	1.26	[-1.67, 4.19]
5th quintile	1.51	[-1.20, 4.22]	-1.20	[-3.98, 1.59]
Overall (N = 2,539)				
1st quintile	-3.23*	[-5.82, -0.65]	0.07	[-1.67, 1.81]
5th quintile	2.97*	[0.90, 5.04]	-0.04	[-1.85, 1.76]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COD Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COD Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COD Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; CSI = Chronic Care Sustainability Initiative; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found that CSI impacted several of the access to care and care coordination measures, with impacts seen primarily when CSI beneficiaries were compared with beneficiaries assigned to PCMH practices. Specifically, **Table 5-27** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **primary care visits** increased among CSI Medicare beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **surgical specialty visits** increased among CSI Medicare beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, **continuity of care**, as measured by concentration of visits, increased among CSI Medicare beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, CSI decreased the *overall* likelihood that a demonstration beneficiary's COC Index was in the lowest quintile and increased the *overall* likelihood that the COC Index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, while the lowest quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of medical specialist visits, primary care visits as a percentage of total visits, follow-up visits within 14 days after discharge, and 30-day unplanned readmissions.

Table 5-28
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries with
multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	1,774	0.61	[-3.61, 4.83]	-1.31	[-3.55, 0.94]
Year Two	1,916	-1.23	[-7.95, 5.48]	-1.32	[-4.57, 1.94]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	2,333	-0.32	[-5.43, 4.78]	-1.31	[-3.63, 1.00]
Medical specialist visits					
Year One	1,774	2.38	[-0.64, 5.39]	2.63	[-0.58, 5.84]
Year Two	1,916	-0.56	[-3.22, 2.11]	0.78	[-1.48, 3.05]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	2,333	0.89	[-1.37, 3.15]	1.69	[-0.61, 3.99]
Surgical specialist visits					
Year One	1,774	0.63	[-1.66, 2.93]	-0.18	[-1.73, 1.36]
Year Two	1,916	2.38	[-0.24, 5.00]	1.02	[-0.95, 2.98]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	2,333	1.52	[-0.67, 3.71]	0.42	[-0.95, 1.80]
Primary care visits as percentage of total visits (% PC)					
Year One					
% PC < 70%	1,326	DNC	DNC	DNC	DNC
70% ≤ % PC < 100%		DNC	DNC	DNC	DNC
% PC = 100%		DNC	DNC	DNC	DNC
Year Two					
% PC < 70%	754	DNC	DNC	DNC	DNC
70% ≤ % PC < 100%		DNC	DNC	DNC	DNC
% PC = 100%		DNC	DNC	DNC	DNC
Year Three					
% PC < 70%	N/A	N/A	N/A	N/A	N/A
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A
% PC = 100%		N/A	N/A	N/A	N/A
Overall					
% PC < 70%	1,650	DNC	DNC	DNC	DNC
70% ≤ % PC < 100%		DNC	DNC	DNC	DNC
% PC = 100%		DNC	DNC	DNC	DNC

(continued)

Table 5-28 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions					
Year One	211	3.63	[-8.08, 15.34]	-0.48	[-4.57, 3.61]
Year Two	183	4.70	[-9.54, 18.95]	-1.98	[-9.59, 5.62]
Year Three	180	8.00	[-17.59, 33.59]	2.44	[-5.70, 10.58]
Overall	522	6.09	[-12.71, 24.88]	0.48	[-2.76, 3.72]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period; thus, Year Three estimates for primary care visits, medical specialist visits, surgical specialist visits, and primary care visits as a percentage of total visits could not be calculated. The Overall estimate is based on Years One and Two only.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an increase in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. The demonstration period for this report includes 14 quarters, but because this outcome is an annual measure, only the first 8 quarters are included in the Overall estimate. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; DNC = regression model did not converge; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, there was no evidence that CSI was associated with improvements in any of the access to care or coordination of care measures. No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits; primary care visits as a percent of total visits; and 30-day unplanned readmissions, as shown in **Table 5-28**.

CSI is expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between CSI and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 5-29** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 5-30** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 5-31** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 5-32** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 5.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data.

Table 5-29
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 1,842)	-44.99	[-226.60, 136.62]	-0.26	[-132.23, 131.70]
Year Two (N = 2,030)	6.03	[-158.84, 170.91]	51.38	[-72.31, 175.08]
Year Three (N = 1,927)	119.53	[-9.98, 249.05]	121.48	[-41.29, 284.24]
Overall (N = 2,597)	51.90	[-57.98, 161.78]	82.80	[-29.28, 194.87]
Overall Aggregate	\$3,521,768		\$5,618,600	

(continued)

Table 5-29 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Acute care				
Year One (N = 1,842)	-86.74	[-204.20, 30.73]	-9.88	[-102.30, 82.54]
Year Two (N = 2,030)	-89.42	[-197.78, 18.94]	-16.81	[-102.99, 69.37]
Year Three (N = 1,927)	30.46	[-45.04, 105.96]	94.41	[-0.52, 189.34]
Overall (N = 2,597)	-31.43	[-111.92, 49.06]	35.07	[-44.14, 114.29]
Overall Aggregate	-\$2,132,715		\$2,380,149	
Post-acute care				
Year One (N = 1,842)	-4.79	[-49.00, 39.42]	-2.13	[-40.41, 36.14]
Year Two (N = 2,030)	18.34	[-31.27, 67.95]	49.80*	[15.88, 83.73]
Year Three (N = 1,927)	8.98	[-28.97, 46.94]	40.00*	[5.38, 74.62]
Overall (N = 2,597)	9.41	[-22.70, 41.52]	31.48*	[9.06, 53.90]
Overall Aggregate	\$638,577		\$2,136,294*	
ER visits not leading to hospitalization				
Year One (N = 1,842)	-7.10	[-20.17, 5.96]	-1.00	[-9.44, 7.44]
Year Two (N = 2,030)	-9.28	[-27.38, 8.81]	10.28	[-0.76, 21.32]
Year Three (N = 1,927)	1.94	[-10.38, 14.27]	1.87	[-10.06, 13.79]
Overall (N = 2,597)	-5.21	[-16.91, 6.50]	4.26	[-4.40, 12.92]
Overall Aggregate	-\$353,242		\$289,149	
Outpatient				
Year One (N = 1,842)	16.60	[-8.03, 41.22]	6.08	[-20.90, 33.05]
Year Two (N = 2,030)	7.73	[-19.81, 35.27]	-3.25	[-31.35, 24.85]
Year Three (N = 1,927)	-5.03	[-27.81, 17.75]	-18.88	[-47.73, 9.96]
Overall (N = 2,597)	6.08	[-11.34, 23.51]	-3.26	[-26.42, 19.91]
Overall Aggregate	\$412,815		-\$221,118	
Specialty physician				
Year One (N = 1,842)	7.70	[-5.68, 21.07]	0.96	[-9.58, 11.50]
Year Two (N = 2,030)	16.27	[-4.27, 36.82]	14.85	[-2.07, 31.76]
Year Three (N = 1,927)	12.61	[-0.61, 25.82]	18.50*	[4.37, 32.62]
Overall (N = 2,597)	12.73*	[1.10, 24.35]	12.81*	[2.13, 23.50]
Overall Aggregate	\$863,531*		\$869,315*	
Primary care physician				
Year One (N = 1,842)	4.77	[-1.86, 11.41]	0.89	[-5.21, 6.98]
Year Two (N = 2,030)	2.80	[-6.66, 12.27]	0.53	[-7.33, 8.40]
Year Three (N = 1,927)	5.13	[-1.66, 11.91]	2.34	[-6.10, 10.78]
Overall (N = 2,597)	4.47	[-1.35, 10.29]	1.92	[-3.95, 7.79]
Overall Aggregate	\$303,252		\$130,426	
Home health				
Year One (N = 1,842)	4.51	[-24.40, 33.42]	20.72*	[3.45, 37.99]
Year Two (N = 2,030)	-0.38	[-22.60, 21.84]	7.53	[-9.38, 24.43]
Year Three (N = 1,927)	16.37	[-3.42, 36.16]	5.54	[-12.36, 23.43]
Overall (N = 2,597)	9.61	[-9.58, 28.81]	11.58	[-2.46, 25.62]
Overall Aggregate	\$652,450		\$785,831	

(continued)

Table 5-29 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other non-facility				
Year One (N = 1,842)	1.45	[-9.96, 12.86]	-2.26	[-12.42, 7.89]
Year Two (N = 2,030)	3.59	[-4.57, 11.76]	-2.13	[-9.07, 4.80]
Year Three (N = 1,927)	-2.88	[-17.29, 11.52]	-1.60	[-13.78, 10.59]
Overall (N = 2,597)	1.04	[-6.64, 8.72]	-1.49	[-7.77, 4.78]
Overall Aggregate	\$70,438		-\$101,435	
Laboratory				
Year One (N = 1,842)	-3.68	[-11.94, 4.59]	1.80	[-4.83, 8.43]
Year Two (N = 2,030)	-3.69	[-9.44, 2.06]	-0.26	[-4.66, 4.14]
Year Three (N = 1,927)	0.73	[-4.31, 5.77]	-1.32	[-7.44, 4.80]
Overall (N = 2,597)	-2.52	[-8.73, 3.69]	-0.17	[-5.38, 5.04]
Overall Aggregate	-\$170,908		-\$11,488	
Imaging				
Year One (N = 1,842)	-3.10	[-6.62, 0.41]	-1.23	[-4.24, 1.78]
Year Two (N = 2,030)	-2.00	[-6.37, 2.37]	-3.13	[-6.37, 0.11]
Year Three (N = 1,927)	0.55	[-2.61, 3.70]	0.27	[-3.19, 3.74]
Overall (N = 2,597)	-0.70	[-3.55, 2.14]	-0.75	[-3.43, 1.94]
Overall Aggregate	-\$47,750		-\$50,887	
Other facility				
Year One (N = 1,842)	0.20	[-0.11, 0.51]	0.08	[-0.36, 0.51]
Year Two (N = 2,030)	0.20	[-0.12, 0.52]	0.20	[-0.12, 0.51]
Year Three (N = 1,927)	0.21	[-0.13, 0.54]	0.19	[-0.10, 0.48]
Overall (N = 2,597)	0.14	[-0.19, 0.48]	0.16	[-0.16, 0.48]
Overall Aggregate	\$9,756		\$10,911	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary months to date.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that CSI impacted expenditures, with the exception of post-acute care and specialty care physician expenditures. In the few cases where there were significant changes, CSI was associated with increased expenditures. Specifically, **Table 5-29** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **post-acute care expenditures** was \$2.1 million greater for CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **specialty physician expenditures** was approximately \$864,000 greater for CSI beneficiaries compared with beneficiaries assigned to PCMH practices and approximately \$869,000 greater for CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for total Medicare, acute-care, ER visits not leading to hospitalization, outpatient, primary care physician, home health, other non-facility, laboratory, imaging, and other facility expenditures.

Table 5-30
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	1,774	71.88	[-27.64, 171.40]	5.04	[-21.37, 31.44]
Year Two	1,916	-8.04	[-154.72, 138.64]	-5.08	[-34.24, 24.07]
Year Three	1,748	34.92	[-153.35, 223.20]	19.27	[-18.93, 57.47]
Overall	2,518	31.24	[-116.20, 178.67]	7.44	[-16.58, 31.47]
Overall Aggregate		\$1,951,881		\$464,991	
Acute care					
Year One	1,774	64.86*	[34.93, 94.79]	-3.42	[-20.24, 13.40]
Year Two	1,916	27.91	[-25.38, 81.20]	-12.78	[-31.07, 5.51]
Year Three	1,748	28.51	[-26.08, 83.10]	2.07	[-18.00, 22.15]
Overall	2,518	34.78	[-4.50, 74.06]	-4.06	[-16.34, 8.21]
Overall Aggregate		\$2,173,248		-\$254,011	
ER visits not leading to hospitalization					
Year One	1,774	5.08	[-2.04, 12.20]	3.97	[-1.49, 9.42]
Year Two	1,916	-18.98*	[-24.36, -13.60]	0.66	[-4.84, 6.16]
Year Three	1,748	-0.51	[-10.51, 9.48]	0.39	[-4.29, 5.07]
Overall	2,518	-4.09	[-9.56, 1.38]	1.32	[-2.46, 5.10]
Overall Aggregate		-\$255,776		\$82,375	
Specialty physician					
Year One	1,774	2.31	[-2.38, 7.01]	-0.50	[-3.25, 2.26]
Year Two	1,916	0.98	[-3.05, 5.02]	-0.76	[-3.14, 1.62]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	2,333	1.64	[-1.77, 5.05]	-0.63	[-2.85, 1.59]
Overall Aggregate		\$58,177		-\$22,385	
Primary care physician					
Year One	1,774	1.42	[-2.34, 5.19]	-0.93	[-2.51, 0.66]
Year Two	1,916	-0.49	[-5.76, 4.79]	-0.74	[-2.59, 1.12]
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	2,333	0.46	[-4.00, 4.91]	-0.83	[-2.34, 0.68]
Overall Aggregate		\$16,177		-\$29,421	

(continued)

Table 5-30 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Prescription drugs					
Year One	1,774	6.46	[-7.44, 20.37]	12.71*	[0.79, 24.63]
Year Two	1,916	8.76	[-9.92, 27.43]	16.01*	[8.08, 23.93]
Year Three	1,748	18.47	[-16.89, 53.83]	18.20*	[4.83, 31.57]
Overall	2,518	11.19	[-16.90, 39.29]	16.63*	[7.92, 25.35]
Overall Aggregate		\$699,445		\$1,039,309*	
Long-term care					
Year One	1,774	-0.06	[-0.46, 0.34]	0.01	[-0.13, 0.15]
Year Two	1,916	0.03	[-0.23, 0.28]	0.03	[-0.04, 0.10]
Year Three	1,748	-1.97*	[-3.24, -0.71]	0.64	[-1.25, 2.53]
Overall	2,518	-0.47*	[-0.86, -0.09]	0.42	[-0.36, 1.20]
Overall Aggregate		-\$29,663*		\$26,300	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Provider specialty information was not well reported in the Medicaid managed care encounter data beginning in Year Three of the demonstration period; thus, Year Three estimates for specialty and primary care physician expenditures could not be calculated. The Overall estimate is based on Years One and Two only.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found little evidence that CSI impacted expenditures, with the exception of prescription drug and long-term care expenditures, and there were inconsistencies in the statistical significant across CGs. Specifically, **Table 5-30** shows that:

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate prescription drug expenditures* was \$1.0 million greater for CSI beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate long-term care expenditures* was approximately \$30,000 lower for CSI beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for total Medicaid, acute-care, ER visits not leading to hospitalization, primary care physician, and specialty care physician expenditures.

Table 5-31
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 1,842)	-11.96	[-38.02, 14.09]	22.89	[-2.65, 48.43]
Year Two (N = 2,030)	-28.34*	[-54.19, -2.49]	9.50	[-9.39, 28.39]
Year Three (N = 1,927)	-6.45	[-34.15, 21.24]	15.41	[-9.39, 40.20]
Overall (N = 2,597)	-11.87	[-31.49, 7.76]	17.79	[-1.53, 37.10]
Overall Aggregate	-268		402	
ER visits not leading to hospitalization				
Year One (N = 1,842)	11.91	[-33.77, 57.59]	17.52	[-24.29, 59.33]
Year Two (N = 2,030)	9.81	[-42.78, 62.40]	31.85	[-19.57, 83.27]
Year Three (N = 1,927)	-7.70	[-48.25, 32.84]	13.08	[-21.18, 47.33]
Overall (N = 2,597)	12.12	[-31.56, 55.79]	23.14	[-18.50, 64.78]
Overall Aggregate	274		523	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary quarters to date.
- Numbers in parentheses represent sample sizes of unique CSI participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A negative value corresponds to a decrease in the rate of events compared with the CG. A positive value corresponds to an increase in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found no evidence that CSI practices changed the utilization. Specifically, **Table 5-31** shows that no statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for all-cause admissions and ER visits not leading to hospitalization.

Table 5-32
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	1,774	1.04	[-0.10, 2.18]	0.05	[-0.57, 0.67]
Year Two	1,916	-0.33	[-2.11, 1.45]	-0.67	[-1.45, 0.10]
Year Three	1,748	0.48	[-1.18, 2.14]	0.11	[-0.52, 0.73]
Overall	2,518	0.26	[-1.03, 1.56]	-0.22	[-0.54, 0.11]
Overall Aggregate		55		-45	
ER visits not leading to hospitalization					
Year One	1,774	1.19	[-1.35, 3.73]	-0.05	[-1.98, 1.88]
Year Two	1,916	-3.32*	[-6.26, -0.38]	-0.20	[-1.55, 1.14]
Year Three	1,748	1.18	[-0.61, 2.96]	-0.21	[-1.74, 1.32]
Overall	2,518	-0.16	[-1.03, 0.70]	-0.17	[-1.33, 0.98]
Overall Aggregate		-34		-36	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CSI participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found no evidence that CSI practices changed the utilization. Specifically, **Table 5-32** shows that no statistically significant *overall* impacts were observed among adult beneficiaries with multiple chronic conditions for all-cause admissions and ER visits not leading to hospitalization.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Within the PCMH, significant care management and coordination resources may be required to meet the needs of these patients. No targeted interventions were implemented under CSI to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse disorders, although there were more frequent discussions about the importance of integrating behavioral health care into PCMHs over the course of the demonstration. Patients with mental illness and substance abuse disorders are expected to benefit from the initiatives to improve access to, coordination of, and continuity of care with primary care and behavioral health care providers. CSI was expected to increase care coordination between PCPs and behavioral health care providers for beneficiaries with mental illnesses and substance abuse disorders. Improved access and care coordination could increase use of outpatient behavioral health services and primary care visits; more appropriate use of outpatient care, in turn, could lead to decreases in rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim and/or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the demonstration. Using this criterion, 19 percent of the Medicare study sample (demonstration and CG beneficiaries) and 6 percent of the adult Medicaid study sample was identified as having a behavioral health condition.

- **Table 5-33** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 5-34** reports on changes in total Medicaid expenditures, expenditures for acute hospitalizations, expenditures for ER visits, and total Medicaid expenditures for which the primary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 5-35** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

- **Table 5-36** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 5.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Rhode Island, the overall estimate for these measures includes all 14 quarters of data.

Table 5-33
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicare expenditures among beneficiaries with behavioral health conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 1,789)	-78.98	[-214.69, 56.73]	30.46	[-64.66, 125.58]
Year Two (N = 2,203)	-30.79	[-189.18, 127.60]	25.19	[-80.99, 131.37]
Year Three (N = 2,259)	159.13*	[67.87, 250.39]	89.88	[-26.57, 206.33]
Overall (N = 2,888)	53.52	[-27.40, 134.44]	69.73	[-11.23, 150.69]
Overall Aggregate	\$3,956,479		\$5,155,098	
Acute care				
Year One (N = 1,789)	-55.97	[-129.65, 17.70]	42.38	[-5.97, 90.73]
Year Two (N = 2,203)	-56.46	[-143.42, 30.51]	1.09	[-47.33, 49.50]
Year Three (N = 2,259)	73.18*	[19.26, 127.11]	64.76*	[9.15, 120.37]
Overall (N = 2,888)	-0.79	[-41.39, 39.82]	41.56*	[2.52, 80.59]
Overall Aggregate	-\$58,235		\$3,072,162*	
ER visits not leading to hospitalization				
Year One (N = 1,789)	-0.48	[-10.35, 9.38]	3.10	[-5.91, 12.11]
Year Two (N = 2,203)	-15.56	[-39.94, 8.81]	3.93	[-8.26, 16.12]
Year Three (N = 2,259)	3.24	[-7.36, 13.84]	0.47	[-10.54, 11.48]
Overall (N = 2,888)	-2.73	[-14.15, 8.68]	2.29	[-6.19, 10.77]
Overall Aggregate	-\$202,117		\$169,158	
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 1,789)	-4.31	[-22.69, 14.08]	22.86*	[3.31, 42.41]
Year Two (N = 2,203)	-8.48	[-28.36, 11.41]	14.41	[-3.64, 32.46]
Year Three (N = 2,259)	5.53	[-11.82, 22.88]	7.59	[-10.55, 25.73]
Overall (N = 2,888)	1.84	[-12.69, 16.37]	17.25*	[1.82, 32.68]
Overall Aggregate	\$136,102		\$1,275,079*	

(continued)

Table 5-33 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 1,789)	-26.30	[-97.39, 44.80]	26.18	[-21.74, 74.10]
Year Two (N = 2,203)	-63.71	[-151.04, 23.63]	-18.05	[-75.22, 39.12]
Year Three (N = 2,259)	85.81*	[34.42, 137.21]	66.10*	[7.66, 124.54]
Overall (N = 2,888)	11.02	[-32.70, 54.73]	33.28	[-13.40, 79.97]
Overall Aggregate	\$814,512		\$2,460,420	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary months to date.
- Numbers in parentheses represent sample sizes of unique CSI participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A negative value corresponds to lower growth in expenditures compared with the CG. A positive value corresponds to greater growth in expenditures compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found no evidence that CSI reduced any of the examined expenditure measures. For two of the expenditure categories, there were increases in expenditure growth, although the results were inconsistent across CGs. Specifically, **Table 5-33** shows that:

- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate* **acute-care expenditures** was \$3.1 million greater for beneficiaries assigned to CSI practices compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate* **expenditures for total services with a principal diagnosis of a behavioral health condition** was \$1.3 million greater for beneficiaries assigned to CSI practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant overall results were observed among Medicare beneficiaries with behavioral health conditions assigned to CSI practices for the overall growth in total Medicare expenditures, expenditures for ER visits not leading to a hospitalization, and expenditures for total services with a secondary diagnosis of a behavioral health condition compared to beneficiaries assigned to either PCMH or non-PCMH practices.

Table 5-34
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicaid expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	1172	74.19	[-86.17, 234.55]	47.21*	[2.47, 91.94]
Year Two	1341	2.27	[-181.24, 185.79]	62.57*	[6.33, 118.80]
Year Three	1295	-22.61	[-126.47, 81.24]	44.76	[-13.12, 102.64]
Overall	1,872	9.41	[-120.08, 138.91]	54.71*	[11.67, 97.75]
Overall Aggregate		\$400,047		\$2,324,776*	
Acute care					
Year One	1172	68.34*	[11.83, 124.86]	16.58	[-4.77, 37.93]
Year Two	1341	50.37	[-13.07, 113.82]	26.88	[-2.51, 56.27]
Year Three	1295	-4.52	[-46.46, 37.42]	11.47	[-16.28, 39.23]
Overall	1,872	23.83*	[1.05, 46.61]	18.48	[-3.56, 40.53]
Overall Aggregate		\$1,012,551*		\$785,299	
ER					
Year One	1172	3.53	[-12.88, 19.95]	7.28	[-4.53, 19.10]
Year Two	1341	-18.18	[-38.21, 1.86]	6.32	[-1.70, 14.34]
Year Three	1295	-1.74	[-20.06, 16.57]	1.80	[-7.17, 10.77]
Overall	1,872	-9.16	[-24.80, 6.49]	4.79	[-1.86, 11.45]
Overall Aggregate		-\$389,068		\$203,676	
Total for services with a principal diagnosis of a behavioral health condition					
Year One	1172	62.97	[-24.46, 150.41]	5.46	[-23.41, 34.33]
Year Two	1341	26.85	[-85.25, 138.94]	6.44	[-24.27, 37.15]
Year Three	1295	77.77	[-4.52, 160.07]	4.71	[-16.09, 25.51]
Overall	1,872	51.80	[-32.17, 135.77]	5.36	[-13.37, 24.09]
Overall Aggregate		\$2,201,170		\$227,922	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique CSI participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults with behavioral health conditions, we found no evidence that CSI reduced any of the examined expenditure measures. For two of the expenditure categories, there were increases in expenditure growth, although the results were inconsistent across CGs. Specifically, **Table 5-34** shows that:

- Among Medicaid adults with behavioral health conditions, the growth in *overall aggregate total Medicaid expenditures* was \$2.3 million greater for beneficiaries assigned to CSI practices compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults with behavioral health conditions, the growth in *overall aggregate acute-care expenditures* was \$1.0 million greater for beneficiaries assigned to CSI practices compared to beneficiaries assigned to PCMH practices.

No statistically significant overall results were observed among Medicaid adults with behavioral health conditions assigned to CSI practices for the overall growth in expenditures for ER visits not leading to a hospitalization and expenditures for total services with a principal diagnosis of a behavioral health condition compared to beneficiaries assigned to either PCMH or non-PCMH practices.

Table 5-35
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 1,789)	-10.94	[-30.24, 8.37]	18.94	[-4.81, 42.69]
Year Two (N = 2,203)	-21.43*	[-40.45, -2.41]	8.83	[-8.56, 26.22]
Year Three (N = 2,259)	5.33	[-6.92, 17.57]	12.05	[-0.47, 24.57]
Overall (N = 2,888)	-5.84	[-15.82, 4.14]	13.46	[-0.99, 27.91]
Overall Aggregate	-144		332	
ER visits not leading to hospitalization				
Year One (N = 1,789)	-9.05	[-58.54, 40.44]	14.50	[-35.15, 64.15]
Year Two (N = 2,203)	-28.41	[-92.43, 35.61]	-3.29	[-64.80, 58.23]
Year Three (N = 2,259)	-10.06	[-52.02, 31.91]	-0.39	[-42.62, 41.84]
Overall (N = 2,888)	-15.14	[-60.92, 30.64]	0.78	[-40.94, 42.49]
Overall Aggregate	-373		19	

(continued)

Table 5-35 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	CSI practices vs. CG PCMHs		CSI practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health inpatient admissions				
Year One (N = 1,789)	-1.58	[-4.89, 1.73]	1.41	[-2.35, 5.17]
Year Two (N = 2,203)	-3.05	[-6.72, 0.61]	0.32	[-2.10, 2.74]
Year Three (N = 2,259)	0.73	[-2.07, 3.53]	0.98	[-1.21, 3.17]
Overall (N = 2,888)	-0.64	[-2.97, 1.69]	1.30	[-1.35, 3.95]
Overall Aggregate	-16		32	
Behavioral health ER visits				
Year One (N = 1,789)	-0.75	[-8.73, 7.22]	4.63	[-6.76, 16.02]
Year Two (N = 2,203)	4.54	[-8.00, 17.07]	8.11	[-12.36, 28.57]
Year Three (N = 2,259)	8.55	[-1.24, 18.34]	5.90	[-5.95, 17.74]
Overall (N = 2,888)	7.00	[-3.49, 17.49]	8.30	[-8.07, 24.67]
Overall Aggregate	173		205	
Behavioral health outpatient visits				
Year One (N = 1,789)	-54.18	[-121.47, 13.10]	29.00	[-19.39, 77.38]
Year Two (N = 2,203)	-47.96	[-109.83, 13.90]	46.22	[-30.57, 123.01]
Year Three (N = 2,259)	40.31	[-6.04, 86.66]	48.38	[-12.98, 109.75]
Overall (N = 2,888)	-9.99	[-52.28, 32.29]	44.48	[-16.97, 105.93]
Overall Aggregate	-246		1,096	

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique CSI participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A negative value corresponds to a decrease in the rate of events compared with the CG. A positive value corresponds to an increase in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

As shown in **Table 5-35**, among Medicare beneficiaries with behavioral health conditions, there was no statistically significant overall impact of CSI on all-cause inpatient admissions, ER visits not leading to a hospitalization, behavioral health inpatient admissions, behavioral health ER visits, or behavioral health outpatient visits relative to either the PCMH or non-PCMH CG.

Table 5-36
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions					
Year One	1,172	1.06	[-0.62, 2.74]	0.59	[-0.30, 1.48]
Year Two	1,341	0.00	[-2.35, 2.35]	0.68	[-0.22, 1.58]
Year Three	1,295	-0.03	[-0.64, 0.59]	0.38	[-0.55, 1.31]
Overall	1,872	0.05	[-0.87, 0.97]	0.56	[-0.22, 1.34]
Overall Aggregate		7		79	
ER visits not leading to hospitalization					
Year One	1,172	2.34	[-0.30, 4.98]	1.21	[-0.91, 3.33]
Year Two	1,341	-0.18	[-3.29, 2.93]	1.64	[-0.59, 3.87]
Year Three	1,295	1.32	[-2.53, 5.16]	1.54	[-0.99, 4.08]
Overall	1,872	0.67	[-2.19, 3.54]	1.49	[-0.52, 3.51]
Overall Aggregate		96		211	
Behavioral health inpatient admissions					
Year One	1,172	1.15	[-0.77, 3.08]	0.67	[-0.37, 1.71]
Year Two	1,341	0.39	[-1.55, 2.33]	0.47	[-0.44, 1.37]
Year Three	1,295	0.51	[-0.58, 1.60]	-0.04	[-0.64, 0.57]
Overall	1,872	0.53	[-0.73, 1.78]	0.36	[-0.31, 1.02]
Overall Aggregate		74		50	
Behavioral health ER visits					
Year One	1,172	1.02	[-0.61, 2.66]	1.51	[-0.21, 3.23]
Year Two	1,341	0.20	[-1.78, 2.17]	1.69	[-0.47, 3.86]
Year Three	1,295	0.26	[-0.95, 1.48]	0.98	[-0.42, 2.38]
Overall	1,872	0.63	[-0.54, 1.80]	1.32	[-0.21, 2.85]
Overall Aggregate		89		187	

(continued)

Table 5-36 (continued)
Rhode Island: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with
behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	CSI vs. CG PCMHs		CSI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits					
Year One	1,172	2.53	[-1.32, 6.39]	-1.00	[-3.99, 1.99]
Year Two	1,341	-3.63	[-9.01, 1.75]	-2.43	[-6.41, 1.54]
Year Three	1,295	1.84	[-3.94, 7.62]	4.59*	[0.99, 8.20]
Overall	1,872	0.36	[-4.32, 5.04]	1.05	[-1.50, 3.59]
Overall Aggregate		51		148	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CSI participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Children enrolled in Medicaid did not participate in CSI.

CG = comparison group; CSI = Chronic Care Sustainability Initiative; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

As shown in **Table 5-36**, among Medicaid adults with behavioral health conditions, there was no statistically significant overall impact of CSI on the likelihood of a beneficiary having an all-cause inpatient admission, an ER visit not leading to a hospitalization, a behavioral health inpatient admission, a behavioral health ER visit, or a behavioral health outpatient visit relative to either the PCMH or non-PCMH CG.

5.7.3 Discussion of Special Populations

CSI generally did not target special populations, and, with the exception of disabled adult Medicaid beneficiaries relative to the PCMH CG, there was no evidence of significant reductions in total expenditures for the special populations studied, relative to both the PCMH and non-PCMH CGs for either Medicare or Medicaid beneficiaries. For the Medicare population, however, there were significant increases in total Medicare expenditures for disabled beneficiaries relative to the PCMH CG and for non-White beneficiaries relative to the non-PCMH CG. For the adult Medicaid population, there were significant increases in total

expenditures for beneficiaries with behavioral health conditions relative to the non-PCMH CG and for beneficiaries with asthma compared with the PCMH CG.

Rhode Island's MAPCP Demonstration application assumed that individuals with chronic conditions would be especially likely to benefit from being in a PCMH. While CSI initially did not have special interventions that targeted this population, there was an increasing focus on high-risk individuals in Year Three, some of whom were likely to be individuals with multiple chronic conditions. Despite efforts described by some practices to improve care for those with multiple chronic conditions, we generally did not find evidence that CSI was associated with improvement in processes of care, access to care, coordination of care, or health outcomes for these individuals in the Medicare or Medicaid populations. The small number of participants in the demonstration, further reduced in these special population analyses, may have contributed to the general absence of significant findings.

During site visits, challenges to addressing the needs of people with behavioral health problems as a result of inadequate provider supply and difficulties integrating behavioral health care into PCMHs were mentioned frequently. CSI undertook several initiatives to address this population's needs, including organizing a Behavioral Health Integration Workgroup and piloting CHTs. Because of these challenges, the absence of an association with significant reductions in expenditures and utilization for both the Medicare and Medicaid populations was not surprising. For the Medicare population, there was evidence of significant increases in some categories of expenditures, and, for the Medicaid population, we found a significant increase in total expenditures, all relative to the non-PCMH CG. While the implication of a significant increase in expenditures for services with a principal behavioral health diagnosis among Medicare beneficiaries is ambiguous and depends on the drivers of this increase, we do not find significant increases in behavioral health outpatient visits to suggest that these higher expenditures could be an indicator of improved access to care. Although a high percentage of CSI providers reported that they referred patients with behavioral health needs to partners with whom they had established relationships, there was no evidence of improved access to outpatient behavioral health services for either the Medicare or Medicaid populations.

5.8 Discussion of Rhode Island's MAPCP Demonstration

CSI enjoyed consistent, strong support among state officials, payers, and practices. Stakeholders viewed CSI as providing the basis for further health care system reforms by strengthening the primary care infrastructure in Rhode Island. Ongoing engagement of these key stakeholders in developing and implementing the initiative was considered critical to maintaining the collaborative environment and ongoing commitment to CSI. Rhode Island's Affordability Standards, which included requirements for commercial payers to invest in primary care and support CSI, also played an important role in sustaining CSI. Still, over the course of the MAPCP Demonstration, payers increasingly looked to build on the foundation created by CSI and were turning their attention to other payment reforms, particularly provider risk-sharing.

Care coordination was a central focus of practice activities throughout the MAPCP Demonstration. Practice-based nurse care managers, whose salaries were supported by PCMH payments, were described as a central component of CSI and key to practices' efforts to improve access to care and care coordination. Extended evening and weekend office hours also helped promote access. Practices developed their capacity for team-based care, hiring new types of staff

and restructuring responsibilities to allow staff to work at the top of their licenses. The CSI requirement to establish compacts with specialists helped promote coordination with providers outside the practice. Practices also became more sophisticated at tracking and analyzing data to guide quality improvement activities, although there was considerable variation across practices and smaller practices faced greater challenges in using data.

Results from the provider survey and the CAHPS PCMH survey confirmed the structural changes within practices in support of PCMH transformation described during site visits. Compared with the average across the eight MAPCP Demonstration states, CSI practices reported engaging in a higher percentage of activities related to coordinating care with providers outside the practice, and a significantly higher percentage of practices reported a high level of adoption for 8 of the 23 activities in the provider survey. On all six multi-item composite scales created for the CAHPS PCMH survey, Rhode Island's scores were equivalent to or significantly higher than the mean scores in two comparison databases. While comparisons with results from the other databases should be interpreted cautiously because of methodological differences in survey administration (particularly the exclusion of disabled Medicare beneficiaries under age 65 in the Rhode Island survey), CSI beneficiaries reported very high levels of satisfaction with provider communication and their ability to get an appointment when needed, although ratings of after-hours access were less favorable.

Despite the evidence of structural changes made by CSI practices, analyses of claims-based measures provided limited or no evidence of significant improvements for either Medicare or Medicaid beneficiaries in outcomes related to quality of care, patient health, access to care, coordination of care, and service utilization and expenditures. To the extent that improvements occurred, they tended to be for outcomes under the direct control of the practice and less dependent on the behavior of external entities, such as hospitals and patients. For example, for Medicare beneficiaries relative to the PCMH CG, we found significant increases in primary care visits and expenditures for several related categories of services (primary care physician services, office and home visits, and office E&M visits) and significant improvement in the COC Index. Improved access to and continuity of care, however, did not result in lower utilization of hospital inpatient and ER services, which require changes in patient and hospital behavior. Practices described adopting strategies to promote patients' self-management of their conditions, and practices' perceptions were largely mirrored in beneficiary focus groups and CAHPS PCMH survey responses. Providers noted, however, that changing patient behavior remained a challenge. Because of the lack of impacts on the major hospital service drivers of health care spending—inpatient and ER utilization—CSI was not successful in reducing total expenditures for Medicare or Medicaid beneficiaries.

Several factors may have contributed to CSI's limited impact on utilization and costs. First, PCPs were the core of CSI, and there was limited effort to engage the broader medical community, particularly hospitals. Although the challenges practices encountered in changing patient behavior undoubtedly contributed to the lack of impacts, stakeholders noted that hospitals had little incentive to turn away patients when they arrived at the ER, although this was beginning to change with the emergence of ACOs and risk-sharing arrangements. Practices faced challenges exchanging information with hospitals, and they often did not receive timely notification about patients seen in the ER or admitted to the hospital, although there were signs of improvement by Year Three. Slow take-up of Rhode Island's HIE also was a barrier to information exchange between PCMHs and other providers, although this too had improved by

the third year of the demonstration. During Year Two site visits, CSI discussed increasing hospital engagement at the initiative level and piloting CHTs in two areas of the state in the upcoming year. New efforts to engage hospitals were not described during Year Three site visits, however, and CHTs were slow to get off the ground. Further, CHTs were not expected to affect the Medicare population, as they were not financially supported by Medicare and did not serve Medicare beneficiaries.

A second factor that might have limited CSI's impact was the extent to which practices focused on the highest-risk patients, which might have offered the greatest opportunity to realize savings. In Year Three, payers and CSI sought to revise the nurse care manager role to prioritize high-risk patients identified in lists provided by payers, concluding that offering patient education and disease management support to a broad set of patients with chronic disease was insufficient to meet CSI's utilization reduction and cost-saving goals. This shift created tensions with some practices, who felt it undermined their ability to undertake broader patient education and population health improvement activities that they considered core tenets of the PCMH. These efforts were just getting under way at the end of the evaluation period, and practices encountered challenges using the payer-provided lists. As a result, the results of this new focus could not be observed during the evaluation. Even if the more focused intervention succeeded in reducing expenditures for high-risk patients, however, the savings for this small group might not be large enough to produce significant reductions for the entire population.

Limited availability of behavioral health providers and difficulties integrating behavioral health care into PCMHs were mentioned repeatedly as significant barriers to addressing patients' behavioral health problems, which were thought to be important drivers of utilization. CSI undertook several initiatives in Year Three to address these barriers, including establishing a Behavioral Health Integration Workgroup, requiring practices to establish compacts with behavioral health care providers, and piloting CHTs. In the adult Medicaid population, we found significant increases in behavioral health care outpatient visits. While this suggests improvements in access to behavioral health care services, there were no corresponding reductions in inpatient admissions or ER visits with behavioral health diagnoses. It is possible that more time was needed to see impacts of CSI's behavioral health initiatives on these services.

An additional factor that might have contributed to the paucity of significant changes in outcomes in our analyses was the considerable heterogeneity among the participating practices in the extent of PCMH transformation, including initiatives to promote care coordination, the sophistication of their ability to use data to guide and improve care, and their use of health IT. Smaller practices faced greater challenges, whereas practices participating in an ACO received extra resources for practice management, data analysis and interpretation, and care coordination. While outcomes were expected to improve over time as practices gained more experience operating as PCMHs, new practices joined CSI over the course of the MAPCP Demonstration. The addition of these practices, which were presumably at less advanced stages of practice transformation, may have diluted the effects of increasing PCMH maturation among the early cohort of CSI practices.

The limited evidence of significant impacts of the MAPCP Demonstration in our analyses may also be due to the diffusion of primary care practice transformation activities in Rhode Island throughout the demonstration period, including the continued growth of CSI, which may have affected CG practices. The cohort of practices that joined CSI in October 2013 was not

considered part of the MAPCP Demonstration because those practices did not receive payments from CMS for Medicare beneficiaries and they remained eligible for our CG. Although they did not receive Medicare payments, these practices participated in all other aspects of CSI. Practices that joined CSI in October 2013 constituted less than 2 percent of the PCMH CG and about 9 percent of the non-PCMH CG in Medicare analyses. Many of the practices that joined in 2013 are FQHCs, so they comprise a larger share of the Medicaid CG—about 20 percent of the PCMH CG and 18 percent of the non-PCMH CG. Thus, their inclusion in the CG has a greater impact on Medicaid estimates than Medicare. These practices' participation in CSI affects estimates for only the final five quarters of the demonstration period. Even during this time period, it is unlikely that effects of CSI participation would be observed immediately. Nonetheless, the participation of these practices in CSI highlights the fact that the CG is not entirely isolated from the primary care practice transformation movement, which may help explain non-significant findings in our analyses.

It is also notable that many of these CSI-participating practices, which presumably were at least somewhat more advanced than many nonparticipating practices even before joining CSI, are in the non-PCMH CG. PCMH status for CG practices is based on NCQA PPC®-PCMH™ recognition. NCQA recognition is an imperfect indicator of the degree to which a practice has the characteristics of a PCMH because practices may choose not to go through the NCQA recognition process. Although we expected to find larger effects of the MAPCP Demonstration relative to the non-PCMH CG than the PCMH CG, this was not always the case. Limitations in the data available to identify PCMH status for CG practices may have contributed to these unexpected findings.

Finally, CSI is the smallest of the state PCMH initiatives participating in the MAPCP Demonstration. Only 13,636 Medicare FFS beneficiaries and 27,402 adult Medicaid beneficiaries were included in the outcome analyses. Particularly for medical expenditures, which have high variability, it may be difficult to find statistically significant results with these levels of enrollment. The challenge was greater in analyses of special populations, where the number of participants was even smaller.

Although the evidence of impacts on Medicare and Medicaid utilization and expenditures was limited, CSI provided an important platform for engaging PCPs, payers, and state officials in health care system reform in Rhode Island. Practices made strides in PCMH transformation over the course of the MAPCP Demonstration, and nurse care managers were widely viewed as a major success of CSI. For the Medicare population in particular, there was evidence that CSI increased access to primary care services and coordination of care. As illustrated by the absence of impacts beyond these outcomes, however, effecting changes in patient behavior and utilization of services outside the direct control of the PCMH proved to be more challenging tasks.

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CHAPTER 6 VERMONT

Overview of Vermont Evaluation Results

The Vermont Blueprint for Health was launched in 2003 by Governor Jim Douglas to provide better management of chronic illnesses and to control costs. In 2007, the legislature directed the Vermont Blueprint for Health state office to launch a pilot of patient-centered medical homes (PCMHs) supported by community health teams (CHTs). Medicare joined the Blueprint for Health as a payer in July 2011 as part of the MAPCP Demonstration. Under this demonstration, participating practices, CHTs, and the Support and Services at Home (SASH) program received monthly care management fees from Medicare and other participating payers along with other support (e.g., data, technical assistance).

Below are some of the key findings from the MAPCP Demonstration in Vermont:

- Approximately 84,000 Medicare beneficiaries and 127,000 Medicaid beneficiaries participated in the Blueprint for Health during the MAPCP Demonstration. In December 2014, the Blueprint for Health had 670 participating providers at 124 practices.
- CMS paid out more than \$18 million in care management fees over the course of the demonstration to MAPCP Demonstration practices, CHTs, and SASH sites to support the infrastructure and services provided as part of the initiative.
- During 14 quarters of the MAPCP Demonstration and after accounting for the demonstration fees paid by Medicare, the MAPCP Demonstration resulted in \$64 million in Medicare savings relative to PCMH comparison practices. Most of these savings were due to slower growth in expenditures for post-acute-care and specialty physicians.
- In contrast, the Blueprint for Health did not have favorable impacts on Medicaid expenditures. For child Medicaid beneficiaries, total Medicaid expenditures increased between \$57 and \$67 million, relative to the comparison groups (CGs). Total expenditures for adult Medicaid beneficiaries increased by \$40 million, relative to PCMH comparison practices. These Medicaid increases were related to relatively greater growth in expenditures for acute care, emergency room (ER) visits, and prescription drugs.
- CHTs and SASH teams were effectively integrated into practices and were recognized by several stakeholders as the most beneficial aspect of the demonstration. CHTs referred patients to community and family wellness programs, followed up and encouraged patients to schedule preventive care appointments, coordinated patient care between primary care practices and other providers or facilities, and followed up with patients after discharge from the hospital. Their care coordination efforts paid off with improvements in care continuity and relative decreases in medical specialist

visits among Medicare beneficiaries. Readmission rates also decreased over the course of the demonstration relative to CGs, although these reductions did not reach statistical significance.

- Blueprint for Health practices expanded access to care via after-hours phone access, extended weekday hours, weekend hours, online patient portals, telemedicine, and same-day appointments. These alternative access methods may have contributed to relative decreases in primary care visits and potentially avoidable admissions observed among Medicare beneficiaries.
- Despite efforts to expand access to care, ER visits among Blueprint for Health Medicare and Medicaid beneficiaries increased at a faster rate than beneficiaries at the comparison practices during the MAPCP Demonstration. The increase in ER visits by Medicare and Medicaid beneficiaries likely reflected the increase in the number of urgent care facilities in Vermont and a shortage of primary care providers (PCPs).
- Patients were generally pleased with the support they received from their providers in terms of engaging them in their care and partnering with them when it came to making health care decisions.
- Because of the shortage of mental health providers in Vermont, the Blueprint for Health had a special focus on patients with behavioral health and substance abuse issues and implemented a Hub and Spoke Initiative. This special focus likely contributed to increases in expenditures for Medicare beneficiaries with behavioral health conditions during the last quarters of the MAPCP Demonstration and for beneficiaries during the MAPCP Demonstration period overall. These increases are likely because of the backlog of individuals in need of behavioral health and substance abuse services.
- Despite a focus on evidence-based guidelines and quality improvement teams, the Blueprint for Health did not have much success in improving processes of care for diabetes and asthma patients in Medicare or Medicaid, although there was a significant increase in appropriate use of antidepressant medication for adult Medicaid beneficiaries. We also observed a trend toward more HbA1c testing among Medicare beneficiaries, including significantly more testing in Year Three. Provider survey results showed a lower percentage of providers in Vermont engaged in systematic quality improvement activities than the average for the eight MAPCP Demonstration states, suggesting that the Blueprint for Health's focus on quality improvement did not translate to the practice level.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to the Blueprint for Health initiative, Vermont's multi-payer PCMH initiative, which added Medicare as a payer in 2011 to implement the MAPCP Demonstration. We report findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Vermont in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in mid-to-late 2014;
- practice transformation surveys conducted among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents, such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from participating practices in Vermont more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey among Medicare FFS beneficiaries. Twelve focus groups were held in Vermont: six in Burlington in August 2014 and six in Rutland in October 2014. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score of less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, Medicaid beneficiaries, and SASH program participants. Groups ranged in size from three to eight participants, for a total of 86 participants. See *Appendix O* for more details on focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to demonstration practices in Vermont during Quarter 7. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In Vermont, a response rate of 44.3 percent was achieved with a total of 627 completed surveys, both of which exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we conducted an online survey among all practices participating in the MAPCP Demonstration, including the 129 Vermont practices participating in the demonstration at the time of our survey. A total of 122 providers from 66 of the 129 Vermont practices completed the survey.

This chapter is organized by major evaluation domains. **Section 6.1** reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in the Blueprint for Health. **Section 6.2** reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (**Section 6.3**); access to care and coordination of care (**Section 6.4**); beneficiary experience with care (**Section 6.5**); effectiveness as measured by health care utilization and expenditures (**Section 6.6**); and special populations (**Section 6.7**). The chapter concludes with a discussion of the findings (**Section 6.8**).

When reviewing the analysis results using Medicare and Medicaid claims, remember that CGs for Vermont were selected from outside the state, unlike most other states in this analysis. This was done because the Blueprint for Health already was present in all Vermont counties at the start of the MAPCP Demonstration. Although we control for regional differences, using external CGs may affect the precision of our estimates. For the Medicare analyses, we use practices from New Hampshire, and for the Medicaid analyses, we use practices from New York.¹

6.1 State Implementation

In this section, we present findings related to the implementation of Vermont's Blueprint for Health and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the Blueprint for Health?
- Were any major implementation issues encountered during the evaluation period and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in **Section 6.1.1**, which describes major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by Blueprint for Health project staff; monthly calls among Blueprint for Health staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. **Section 6.1.2** presents a logic model that reflects our understanding of the link between specific elements of the Blueprint for Health and expected changes in outcomes. **Section 6.1.3** presents key findings gathered from the site visits regarding the implementation experience of state officials, payers, and providers during the evaluation period. **Section 6.1.4** concludes the State Implementation section with lessons learned.

¹ Based on demographic characteristics, New Hampshire provided the best match among states for a comparison group. However, for the Medicaid analysis we were limited to data available from other MAPCP Demonstration states. Among the other seven MAPCP Demonstration states, New York was the best match.

6.1.1 Vermont State Profile as of December 2014

The Vermont Blueprint for Health was launched in 2003 by Governor Jim Douglas to provide better management of chronic illnesses and to control costs. The initiative was codified in statute in 2006 as part of the state's health care reform legislation. Since that time, the state legislature expanded the initiative's shape and reach.

In 2007, the legislature directed the Vermont Blueprint for Health state office to launch a pilot of PCMHs supported by CHTs, which worked with primary care practices to provide care coordination and other supportive services, in three regions of the state. In 2010, the Blueprint for Health office was directed to expand to include at least two PCMHs in each of the 14 geographic regions, also known as health service areas (HSAs), in the state by July 2011 and to include any practice in the state that wanted to participate by October 2013. Primary care practices throughout the state steadily transformed to become PCMHs recognized by the National Committee for Quality Assurance (NCQA), and CHTs were put in place to support them in all state HSAs. CHT extender staff members were added in all HSAs to focus solely on care for the elderly in the community through the Blueprint for Health SASH program.

Since 2008, all major payers, both commercial and public, have been required to participate financially in the Blueprint for Health. Self-insured employers were not required to participate, although some chose to do so. The state made payments to practices for Medicare beneficiaries, in addition to Medicaid, until Medicare joined the Blueprint for Health as a payer in July 2011. The MAPCP Demonstration was planned to end on December 31, 2014; however, all participating payers, including Medicare, agreed to extend the demonstration in Vermont through December 31, 2016. The Blueprint for Health office continues to oversee payer participation, including Medicare, and to manage the Blueprint for Health.

State environment. Vermont has been working on health reform for more than 10 years to increase access and improve the delivery and quality of care to all Vermonters. The state obtained a Section 1115 Medicaid waiver in 2005, which was renewed through 2016. This waiver made the state Medicaid agency a managed care organization, allowed its Medicaid program to cover residents with incomes of up to 300 percent of the federal poverty level (FPL), and established sliding-scale premiums for some beneficiaries.

The Blueprint for Health, which launched as a pilot in 2008, expanded steadily throughout the state. The first pilot area, in the St. Johnsbury HSA, launched in July of that year, followed by the Burlington HSA in October, and the Barre HSA in January 2010. In 2010, the Blueprint for Health office was directed to expand to include at least two PCMHs in each HSA by July 2011.

The three major commercial insurers in the state were Blue Cross Blue Shield of Vermont, Cigna, and MVP Health Care. Health care providers operated primarily in a FFS environment, although payment reform was planned and accountable care organizations (ACOs) were operating in the state. An ACO linking roughly 100 independent physicians (Accountable Care Coalition of the Green Mountains, LLC) started in 2012. Another ACO (OneCare Vermont Accountable Care Organization, LLC) that incorporates all but one of the state's 14 community hospitals began in 2013. A third ACO, Community Health Accountable Care, LLC, is a group of

federally qualified health centers (FQHCs) that began in 2014. Medicare Advantage has had very low penetration in Vermont, covering only 8,368 lives in 2014.

Several other programs in the state operating concurrently with the MAPCP Demonstration may have influenced outcomes for participants in the demonstration or the comparison population:

- The Vermont Chronic Care Initiative (VCCI) was providing targeted case management to particularly high-risk Medicaid beneficiaries. VCCI case managers operated in coordination with CHT staff for patients receiving services from both programs.
- The SASH program made CHT extender staff for care coordination available to all Medicare beneficiaries within its catchment areas through creation of SASH panels in subsidized housing complexes and surrounding communities. The SASH model officially rolled out in July 2011 at one housing site. In October 2011, the program expanded to other subsidized housing properties throughout Vermont. Since then, new sites were added every quarter.
- Recognizing the need to integrate behavioral health services more effectively for Medicaid beneficiaries, Vermont implemented a Section 2703 Medicaid Health Home program targeting Medicaid beneficiaries with substance abuse disorders. This approach used a hub and spoke model² for integrating medication-assisted treatment services for substance abuse issues and co-occurring mental health disorders into the Blueprint for Health. Vermont Medicaid began implementing the model in January 2013. The state is operating the program under two State Plan Amendments (SPAs), each covering a different region of the state. The first SPA became effective July 1, 2013, and the second on January 1, 2014.
- Vermont received a Model Testing award in early 2013 under the State Innovation Model (SIM) Initiative. The state is testing a variety of shared savings ACO models, bundled payment models, and pay-for-performance models to improve care coordination and collaboration in the state and to improve performance at both population and provider levels. This work built on the Blueprint for Health infrastructure by expanding the number of practice facilitators assisting practices with multiple facets of practice transformation. In addition, it more closely connected Blueprint for Health primary care practices to specialty providers and expanded the use of health information technology (IT) to develop a learning health system for continuous improvement. As part of the SIM work, Vermont Medicaid launched a Medicaid Shared Savings Program at the beginning of 2014. Two organizations are

² The Blueprint for Health operated five hubs, in which a regional treatment center was responsible for coordinating across systems of care for people with complex addictions and mental health conditions. Hubs were supported by a network of spokes, consisting of the prescribing physician and associated mental health and addictions professionals. Prescribing physicians provided and monitored medication-assisted treatment, and the mental health and addictions professionals provided counseling and case management services.

participating: the OneCare ACO and Community Health Accountable Care. Blueprint for Health practices joined these ACOs.

Demonstration scope. In 2011, as part of the MAPCP Demonstration, the Blueprint for Health began making payments to 63 practices, which were located in HSAs across the state.

Table 6-1 shows participation in the Blueprint for Health at the end of Years One, Two, and Three of the demonstration and the end of the evaluation period (December 31, 2014). The number of participating practices increased at a steady pace since the MAPCP Demonstration began, though it lagged behind the state's original projections. Between the end of Year One to the end of the evaluation period, participating practices with attributed Medicare FFS beneficiaries increased by 45 percent, from 86 to 125 practices. To participate in the Blueprint for Health, primary care practices were expected to be recognized as NCQA PCMHs. Originally, the state hoped to have 220 practices recognized as NCQA PCMHs by October 1, 2013. As of December 31, 2014, 124 practices were recognized as PCMHs. Vermont state officials explained that they reached a saturation point and had recruited the willing practices; thus, the rate of onboarding new practices had "plateaued." The number of providers in these practices increased by 50 percent over this period, from 430 to 645.

The state originally projected that it would include its entire population, approximately 637,130 individuals, in Blueprint for Health practices across all payers by October 1, 2013. Although the number of all-payer participants increased by 48 percent over the course of the MAPCP Demonstration, the participation only reached 355,250 individuals, or 56 percent of the projected target, likely because not all practices in the state joining the initiative.

The cumulative number of Medicare FFS beneficiaries who had ever participated in the demonstration for 3 or more months increased by 72 percent, from 48,848 to 84,151. The cumulative number of Medicaid beneficiaries who ever participated for 3 or more months nearly doubled (97% increase), from 64,502 to 127,319. From the end of the first year to the end of the second year alone, the number of participating Medicaid beneficiaries increased by 54 percent.

Table 6-1
Vermont: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants participating in the Vermont Blueprint for Health

Participating entities	Number as of June 30, 2012	Number as of June 30, 2013	Number as of June 30, 2014	Number as of December 31, 2014
Medicare				
Blueprint for Health practices ¹	86	118	127	125
Participating providers ¹	430	607	638	645
Medicare FFS beneficiaries ²	48,848	65,896	78,881	84,151
Medicaid				
Blueprint for Health practices ³	82	83	82	82
Medicaid beneficiaries ³	64,502	99,414	117,795	127,319
All-payer				
Blueprint for Health practices ⁴	92	111	123	124
Participating providers ⁴	457	583	636	670
All-payer participants ⁴	190,167	262,793	271,282	281,880

NOTES:

- The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a Blueprint for Health practice and participated in Blueprint for Health for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent to treat design of our evaluation. The number of all-payer participants also represents the number of individuals who were ever attributed to a Blueprint for Health practice.
- Blueprint for Health practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices.
- Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- For Medicaid, Blueprint for Health practices include only those practices with attributed Medicaid beneficiaries.
- The number of participating Medicaid providers could not be determined using the Medicaid FFS claims and managed care encounter files.
- The all-payer numbers are derived from the state using their own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice.

SOURCES: ¹ Actuarial Research Corporation (ARC) MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³Vermont Medicaid enrollment and claims files (see Chapter 1 for more detail about these files); ⁴Vermont Quarterly Reports to CMS.

Participation by commercial and public payers was comprehensive. Medicaid, the state employee health insurance plan, and all major commercial plans (Blue Cross Blue Shield of Vermont, Cigna, and MVP Health Care) were required to participate. The state estimated that as of December 31, 2014, Medicare FFS covered 24 percent of patients in the demonstration, Medicaid covered 36 percent, Blue Cross Blue Shield of Vermont covered 35.5 percent, MVP covered 4 percent, and Cigna covered 0.5 percent. Vermonters with incomes more than 133 percent of the FPL, previously covered by Medicaid under the state's Section 1115 waiver,

transitioned with financial help to qualified health plans in Vermont’s state-based insurance marketplace; they also participated in the Blueprint for Health. Participation by self-insured employers was voluntary, and some major employers (e.g., Fletcher Allen Health Care, an academic medical center) did not participate.

Table 6-2 displays the characteristics of the practices participating in the Blueprint for Health as of the end of the evaluation period (December 31, 2014). There were 125 participating practices, with an average of five providers per practice. Most of these were either office-based practices (59%) or FQHCs (22%). An additional 10 percent were critical access hospitals (CAHs), and 9 percent were rural health clinics (RHCs). Thirty-five percent of practices were located in metropolitan counties, 36 percent in micropolitan, and 29 percent in rural counties. Medicaid beneficiaries were attributed to fewer participating Blueprint for Health practices; among these practices, the distribution of practice type was fairly similar to that for Medicare.

Table 6-2
Vermont: Characteristics of practices participating in the Blueprint for Health as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	125	82
Number of providers (total)	645	—
Number of providers per practice (average)	5	—
Practice type (%)		
Office-based practice	59	46
FQHC	22	29
CAH	10	15
RHC	9	10
Practice location type (%)		
Metropolitan	35	—
Micropolitan	36	—
Rural	29	—

NOTES:

- Vermont did not provide a count of the unique number of Medicaid providers participating in the Blueprint for Health.
- Practice location type could not be determined using the Medicaid claims files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = rural health clinic; — = data not available.

SOURCES: ¹ARC Q14 MAPCP Demonstration Provider File; ²Vermont Medicaid enrollment and claims files. (See Chapter 1 for more details about these files.)

In **Table 6-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating Blueprint for Health practices during the evaluation period (July 1, 2011, through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration were not included in our evaluation or in this analysis. Nineteen percent of the beneficiaries assigned to Blueprint for Health practices during the evaluation period were

under the age of 65; 49 percent were 65 to 75; 23 percent were 76 to 85; and 9 percent were older than 85. The mean age was 69. Beneficiaries were mostly White (97%). Thirty-one percent lived in urban areas, and 57 percent were female. Twenty-six percent of beneficiaries were dually eligible for Medicare and Medicaid, and 26 percent were eligible for Medicare originally due to disability. Less than 1 percent of beneficiaries had end-stage renal disease, and less than 1 percent resided in nursing homes during the year before their assignment to a Blueprint for Health practice.

Table 6-3
Vermont: Demographic and health status characteristics of Medicare FFS beneficiaries
participating in the Blueprint for Health from July 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	84,151
Demographic characteristics	
Age < 65 (%)	19
Age 65–75 (%)	49
Age 76–85 (%)	23
Age > 85 (%)	9
Mean age	69
White (%)	97
Urban place of residence (%)	31
Female (%)	57
Dually eligible beneficiaries (%)	26
Disabled (%)	26
ESRD (%)	0
Institutionalized (%)	0
Health status	
Mean HCC score groups	0.94
Low risk (< 0.48) (%)	27
Medium risk (0.48–1.25) (%)	53
High risk (> 1.25) (%)	20
Mean Charlson Comorbidity Index score	0.67
Low Charlson Comorbidity Index score (= 0) (%)	67
Medium Charlson Comorbidity Index score (≤ 1) (%)	17
High Charlson Comorbidity Index score (> 1) (%)	16
Chronic conditions (%)	
Essential hypertension	31
Lipid metabolism disorders	19

(continued)

Table 6-3 (continued)
Vermont: Demographic and health status characteristics of Medicare FFS beneficiaries
participating in the Blueprint for Health from July 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	14
Diabetes without complications	
Coronary artery disease	9
Cardiac dysrhythmias and conduction disorders	9
Other respiratory disease	9
Disorders of joint	7
Acute and chronic renal disease	5
Anemia	5
Dizziness, syncope, and convulsions	5
Hypothyroidism	5
Diabetes with complications	3
Heart failure	3
Chest pain	3
Urinary tract infection	3
Malaise and fatigue (including chronic fatigue syndrome)	3
Valve disorders	2
Renal failure	2
Peripheral vascular disease	1
Cardiomyopathy	1
Dementias	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year for which a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in metropolitan or micropolitan statistical areas defined by the Office of Management and Budget.

EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries' health status during the year before their assignment to a Blueprint for Health practice. HCC scores for Medicare beneficiaries assigned to a Blueprint for Health practice were calculated using the 12 months of Medicare claims data

prior to the year they were first assigned. Medicare beneficiaries assigned to a Blueprint for Health practice had a mean HCC score of 0.94, meaning that they were predicted to be 6 percent less costly than an average Medicare FFS beneficiary. Beneficiaries' average score on the Charlson Comorbidity Index was 0.67.³ And two-thirds (67%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before their assignment to a participating Blueprint for Health practice. The most common chronic conditions diagnosed were hypertension (31%), lipid metabolism disorders (19%), and diabetes without complications (14%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In *Table 6-4*, we report demographic and health status characteristics of Medicaid beneficiaries who were assigned to participating Blueprint for Health practices during the evaluation period (July 1, 2011, through December 31, 2014). Fifty-two percent of the Medicaid beneficiaries assigned to Blueprint for Health practices during the evaluation period were children, with a mean age of 7 years, and the remaining 48 percent of Medicaid beneficiaries were adults, with a mean age of 37 years. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in the table above. Almost one-third of children and adults resided in an urban area. About 49 percent of the children were female, and 60 percent of adults were female. Only 3 percent of children were eligible for Medicaid due to disability, compared with 9 percent of adults. Children had relatively few chronic conditions (7% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score. In contrast, adults had significantly more chronic conditions (28% had three or more chronic conditions) and a CDPS score of 1.72.⁴

³ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples' Charlson Comorbidity Index, the greater morbidity in the study sample.

⁴ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the CDPS scores in the study sample, the greater the morbidity in the study sample.

Table 6-4
Vermont: Demographic and health status characteristics of Medicaid beneficiaries
participating in the Vermont Blueprint for Health from July 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	65,829	61,490
Demographic characteristics		
Mean age	7	37
White (%)	N/A	N/A
Urban place of residence (%)	29	31
Female (%)	49	60
Medicaid eligibility due to disability (%)	3	9
Other Medicaid eligibility (%)	97	91
Institutionalized (%)	0.05	0.2
Health status		
Mean CDPS score groups	2.47	2.12
Low birth weight and serious perinatal problems (%)	6	—
Mean number of chronic conditions	0.74	1.72
0 chronic conditions	55	36
1–2 chronic conditions	39	37
3 or more chronic conditions	7	28

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using Vermont's Medicaid enrollment and claims files, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.
- Race information was unavailable in Vermont's all-payer claims database.

CDPS = Chronic Illness and Disability Payment System; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available because Vermont did not report race data; PCMH = patient-centered medical home; — = not applicable.

SOURCE: Vermont Medicaid enrollment and claims files residing in Vermont's all-payer claims database.

Practice expectations. Practices that joined the initiative before January 1, 2012, were required to reach at least Level 1 PCMH recognition based on 2008 NCQA Physician Practice Connection (PPC®)-PCMH™ standards. Practices that became recognized as PCMHs after January 1, 2012 had to attain at least Level 1 PCMH recognition based on 2011 NCQA PCMH standards. NCQA PCMH recognition was valid for 3 years, after which practices had to reapply for recognition; the Vermont Child Health Improvement Program (VCHIP) assessed practices for the Blueprint for Health every 3 years, scoring them in preparation for submission of their information to NCQA. In addition, Vermont required practices to do the following:

- Designate a quality improvement team that met at least monthly and worked with the state quality improvement program, Expansion and Quality Improvement Program (EQuIP).
- Have an agreement with their local CHT and integrate CHT services into their practice.

- Enter into an agreement with Vermont Information Technology Leaders (VITL), which provided assistance to practices adopting electronic health record (EHR) systems. Practices also needed to demonstrate progress toward being able to communicate with the statewide clinical registry, DocSite. DocSite aggregated patient-level data from providers and allowed providers to run reports that facilitated panel management.

Support to practices. Private and public payers paid PCMHs on a scale ranging from \$1.20 to \$2.39 (for those with 2008 NCQA recognition) or \$1.36 to \$2.39 (for those with 2011 recognition) per member per month (PMPM) based on their NCQA PCMH recognition score.⁵ From July 1, 2011, through December 31, 2014, Medicare made \$4,436,650 in MAPCP Demonstration payments to participating practices, and \$13,937,881 to CHTs and the SASH program, for a total of \$18,374,531.⁶ The average Medicare payment per practice over the 3.5 years of the demonstration was \$165,536 (\$39,970 directly to practice and \$125,567 to CHTs and SASH [*Table 6-5*]).

Table 6-5
Vermont: Medicare MAPCP Demonstration payments

Year	Average Medicare payment per practice	Medicare payments to practices	Medicare payments to CHTs and SASH	Total Medicare payments
Year One	\$40,403	\$12,221	\$28,183	\$3,111,045
Year Two	\$56,207	\$12,872	\$43,336	\$5,452,126
Year Three	\$63,460	\$14,378	\$49,082	\$6,409,492
Year Four	\$33,028	\$7,718	\$25,310	\$ 3,401,866
Overall	\$165,536	\$39,970	\$125,567	\$18,374,531

NOTES:

- The Year Four amounts include payments made during the period from July 1, 2014 through December 31, 2014.
- Medicare payments to practices reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.
- Total Medicare payments includes payments to practices, CHTs, and the SASH program.

CHT = Community Health Team; MAPCP = Multi-Payer Advanced Primary Care Practice; SASH = Support and Services at Home

SOURCE: Medicare claims data.

Each CHT had a \$350,000 annual budget to support a general patient population of 20,000, which covered approximately five full-time positions in multiple disciplines within the core CHT. Each payer (with the exception of Medicare) contributed a percentage of the total CHT budget based on insurer market share. Medicare supported CHTs on a per beneficiary per month (PBPM) basis based on actual enrollment of Medicare beneficiaries to a practice located in the CHT's HSA. In addition, under the MAPCP Demonstration, the Medicare program made

⁵ The PMPM payment amounts do not reflect the 2 percent reduction in Medicare payments that began in April 2013 as a result of sequestration.

⁶ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

\$5.21 PBPM payments to support the SASH program. Payment rates to practices and CHTs had not changed since 2008; Blueprint for Health leaders offered recommendations for altering the payment methodology in a report submitted to the Vermont legislature in October 2014.

The composition and skills of CHT staff were decided locally on the basis of community needs. CHTs coordinated care, services, referrals, transitions, and social services; provided self-management support and counseling to individuals with chronic illness; and incorporated extenders, including the SASH program staff and the VCCI care coordinators. CHTs also provided motivational interviewing training to providers, held Healthier Living self-management workshops, and implemented shared decision-making tools.

The Blueprint for Health invested significantly in practice transformation assistance. The Blueprint funded EQuIP to provide practice facilitation. EQuIP facilitators taught the primary care practices change theory and how to apply it to health care service delivery; assisted with practice team development, NCQA application preparation, implementation of EHRs, and rapid-change-cycle projects focused on patient-centered care; and coordinated with CHTs and other practice support resources. According to the VCHIP EQuIP Facilitators' Reports on Encounters with Primary Care Practices (Krulowitz & Adams, 2013), facilitators reported spending an average of 6–10 hours over the course of a month with practices preparing for NCQA recognition. The state also provided learning collaboratives for Blueprint for Health physician leaders, nurses, office managers, and other staff on a range of topics, such as asthma, preventive screening for cancer, and office-based medication-assisted treatment for opioid addiction.

In addition, in Year Three, CHTs began working with practices, particularly small practices, 6 months before NCQA scoring to assist them in building relationships with CHT staff members and other community resources to support practices in meeting the more stringent 2011 NCQA PCMH requirements. A memorandum of understanding was put in place with commercial payers and Medicaid (but not Medicare) to front-load CHT payments to facilitate this work.

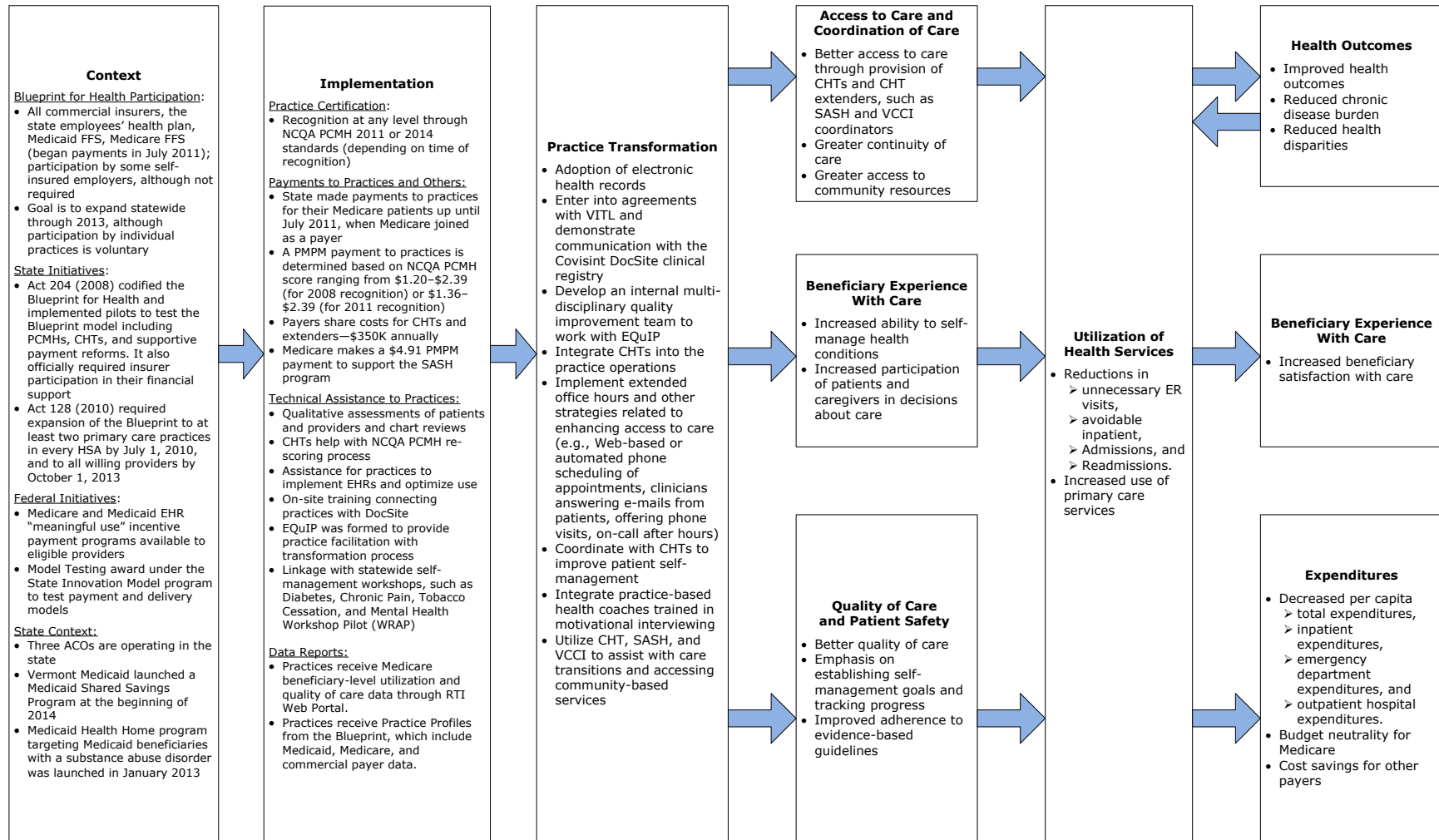
In addition, the Blueprint for Health registry vendor (Covisint) provided on-site help connecting practices with the DocSite clinical registry and on-site training enabling practices to generate their own reports. Blueprint for Health staff collaborated with IT partners to provide more intensive health IT support to practices through a sprint process, with the goal of establishing accurate, timely, and reliable data reporting. In 2014, VITL launched a new provider portal as a component of the state's health information exchange (HIE), called VITL Access, which allowed providers to search and retrieve a variety of records, including clinical summaries, medication histories, laboratory results, and hospital admission, discharge, and transfer information.

6.1.2 Logic Model

Figure 6-1 is a logic model of the Blueprint for Health meant to depict the hypothesized relationship between specific elements of the Blueprint for Health and changes in outcomes. The first column describes the context for the demonstration, including the scope of the Blueprint for Health; other state and federal initiatives that could have affected the state initiative; and key features of the state context that could have affected the demonstration, such as three ACOs

operating in the state and two ongoing Medicaid initiatives. The demonstration context affected the implementation of the Blueprint for Health, including practice certification requirements and the provision of payments, technical assistance, and data reports to practices. Implementation activities are expected to promote the transformation of practices to PCMHs, reflected in care processes and other activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher quality care, as well as better patient experiences with care, and to be more engaged in decisions about treatments and management of their conditions, as shown in the fourth column. These improvements were, in turn, expected to promote more efficient utilization of health care services, as shown in the fifth column. These changes in utilization were expected to produce further changes, shown in the final column, including improved health outcomes, improvements in beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for Medicare and cost savings for other payers. Improved health outcomes, in turn, were expected to reduce utilization further.

Figure 6-1
Logic model for Vermont's Blueprint for Health



ACOs = accountable care organizations; CHTs = community health teams; EHR = electronic health record; EQuIP = Expansion and Quality Improvement Program; ER = emergency room; FFS = fee-for-service; HSA = health service area; NCQA = National Committee for Quality Assurance; PCMH = patient-centered medical home; PMPM = per member per month; SASH = Support and Services at Home; VCCI = Vermont Chronic Care Initiative; VITL = Vermont Information Technology Leaders.

6.1.3 Implementation

This section uses primary data gathered from Vermont site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 6.1*.

Major changes during the evaluation period. Over the course of the MAPCP Demonstration period, interviewees commented positively on the Blueprint's maturation. Many felt that the Blueprint for Health was well established in the state, and participating practices were forming strong relationships and integrating more effectively with CHTs and SASH teams. Over time, the Blueprint for Health model was expanded to a broader range of patients, including children and patients with substance use disorders. The number of participating pediatric practices grew over the course of the demonstration. In addition, in 2013, Vermont Medicaid began financing the Hub and Spoke Initiative through a Section 2703 Health Homes State Plan Amendment (see *Section 6.1.1* for more information). The initiative supported patients with substance use disorders through medication-assisted treatment. Some Blueprint for Health practices chose to become spoke practices, providing treatment and care to patients with substance use disorders in primary care settings. To support this work, the Blueprint for Health augmented CHT staff by adding one licensed mental health/substance abuse clinician and registered nurse for every 100 people being treated for opioid addiction to provide counseling and case management services. Some Blueprint for Health practices initially had reservations about becoming spokes, concerned that they did not have sufficient training or that patients would be difficult to work with. Over time, however, the initiative continued to expand and engender more support. In 2014, commercial payers spread this program to their members through contracts with each of the five hubs.

The state also built new health IT platforms to help improve data transmission and acquisition (see the "Major implementation issues during the evaluation period" section below for more information on health IT challenges in Vermont). Because of challenges with DocSite, VITL Access was launched, serving as a secure portal where providers could query data from aggregated patient information obtained from various providers through the Vermont HIE. State officials noted that although some of the information in both systems was the same, VITL Access was not wholly duplicative of DocSite. The state also built the Blueprint for Health Web Portal, which allowed practices and CHTs to upload and verify information about their organizations. This platform was intended to alleviate some of the administrative burden on these organizations and state staff in capturing workforce data.

Major implementation issues during the evaluation period. Three major implementation issues emerged over the course of the evaluation period. First, there were issues with the implementation of health IT. Many practices, CHTs, and SASH teams continually struggled to obtain reliable data to manage their populations through the statewide clinical registry, DocSite. Some providers were able to have their EHR transmit data directly to DocSite and credited the state for providing intensive resources to help them connect to the registry. But other providers faced a myriad of challenges, most notably many practices with EHRs that could not send data directly to DocSite. These providers did, however, continue to send information to

DocSite manually, which compounded providers' feelings that the Blueprint for Health's reporting requirements were burdensome. In addition, although some providers reported that they were able to use DocSite to run population-based reports, many others reported that they did not think the data in DocSite were reliable enough to generate population-based reports. Many practices instead opted to run reports through their own EHRs. Another health IT challenge was the consent to view policy for access to patient integrated health records in DocSite and VITL Access. According to the policy, patients had to give consent affirmatively to their PCP, hospital, and each specialist to view their records in the systems. There was concern that the policy would limit use of the health information systems and providers' access to comprehensive health information for their patients.

Second, commercial payers expressed frustration with how CHTs documented their encounters. Because CHTs documented encounters in practices' EHRs and did not file separate insurer-specific reports, many commercial payers felt they lacked adequate data to know how CHT interventions were affecting their members. One payer representative also felt unable to engender much support for CHTs among self-insured employers because "we cannot show employer groups what is happening." State officials, however, did not think it was reasonable for CHTs to double-track patients within EHRs and separately for payers.

Third, by the end of Year Three of the demonstration, inflation and increasing costs of living for staff had subsumed Blueprint for Health payments, rendering them insufficient to support PCMH infrastructure and operational costs for practices. Although practices expressed their concern about the viability of the current payment methodology, they generally lauded the value of CHTs—a testament to the maturation of the model. CHTs also struggled to maintain financial viability through Blueprint for Health payments; many CHT administrative entities subsidized their operation and staff costs. Blueprint for Health leaders recognized the need for change, and, in 2014, they submitted a report to the state legislature proposing recommendations for either increasing the PMPM payments under the current methodology or developing a new performance-based methodology.

External and contextual factors affecting implementation. The number of concurrent health reform initiatives increased in Vermont during the MAPCP Demonstration. Interviewees generally felt that the Blueprint for Health was the foundation for health care reform in Vermont but questioned how it would be integrated into other initiatives. Specifically, the number of ACOs grew to three in the state by 2014; one state official reported that "virtually all Blueprint practices have enrolled in an ACO." These ACOs entered into risk-based contracts with Medicare, Blue Cross Blue Shield of Vermont, or, beginning in 2014, Medicaid through the Medicaid Shared Savings Program Pilot. Recognizing the dual involvement of most Blueprint for Health practices in ACOs, Blueprint for Health leaders and other stakeholders committed time and resources to creating alignment among quality metrics in the Blueprint for Health and individual shared saving programs to minimize provider burden. CHTs, however, remained uncertain about how they would integrate with ACO infrastructure and avoid duplicating services provided by ACOs. In addition, in 2013, Vermont obtained a SIM Model Testing award. Vermont's SIM plan built upon the advanced primary care platform of the Blueprint for Health and continued to foster the development of ACO models. Some payers and providers expressed guarded optimism about how all of these initiatives would ultimately be integrated. Other stakeholders, however, were positive about the additional resources SIM brought to the state,

including funds to develop a more robust health IT infrastructure, which would directly benefit Blueprint for Health practices.

6.1.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, state officials underscored the importance of having the financial support of multiple payers in health care reform initiatives. When practices transformed their infrastructure and staff to meet PCMH core tenets, their whole patient population benefited; one state official felt that initiatives needed “a critical mass of payers to make [practice transformation] financially viable” for practices. Blueprint for Health practices and CHTs benefited from the required participation of all payers in the state, some self-insured employers, and Medicare. State officials repeatedly noted that Medicare’s participation was crucial in ensuring that aspects of the Blueprint for Health, particularly CHTs and SASH teams serving a large proportion of Medicare beneficiaries, remained financially viable.

Second, despite the leverage of multi-payer investment, the Blueprint for Health’s payment methodology needed to evolve over time to meet the needs of participating practices and CHTs, according to multiple state officials. The payment methodology had not changed since 2008, and, as a result, payments no longer adequately supported practices’ PCMH infrastructure or CHTs’ operational costs. One payer observed that “there should have been a more gradual change” over time in payment amounts but conceded that “it would have been hard to do while the Blueprint was still proving its value.”

Finally, robust quality and utilization data were necessary to support health care reform and practice transformation, but they were difficult to produce. Practices and CHTs needed reliable data that would help them identify high-risk patients in need of additional services and better manage the health of their populations. Developing Vermont’s health IT infrastructure took time; the state was hopeful at the end of Year Three that the SIM initiative would bring an influx of resources to the state to continue to advance its IT and data infrastructure.

6.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the demonstration and patients’ awareness of these changes, drawing on data from our focus groups and our three site visits (**Section 6.2.1**). We then present practices’ experiences using technical assistance provided as part of the demonstration (**Section 6.2.2**), and practices’ views on the payment model used in this demonstration (**Section 6.2.3**), drawing on data from our site visits. Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (**Section 6.2.4**). We then synthesize the site visit and survey findings in **Section 6.2.5**.

6.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. The Blueprint for Health required that participating practices obtain NCQA PCMH recognition. Early entrants in the Blueprint for Health qualified under NCQA’s 2008 PPC®-PCMH™ standards, although later entrants were required to qualify under the 2011 standards, perceived as being stricter. As practices’

recognition neared expiration (every 3 years), they were required to recertify using the most current standards available at that time. At the start of the demonstration, PCMH recognition encouraged practices to focus on care quality and coordination. Practices had increased documentation, followed more guidelines for exams, and held more structured planned visits. During the following years, practices improved processes to become more patient-centered, through pre-visit planning, clinical summaries for patients, and increased CHT staff. As practices' PCMH capabilities advanced, practices focused more on providing services for patients with substance abuse and mental health issues.

Practices found the labor- and time-intensive task of obtaining NCQA recognition to be challenging. Many NCQA standards took time to embrace, but this was manageable with Blueprint for Health and CHT support. At the beginning, one provider noted that it was difficult to offer new services that responded to NCQA requirements before receiving the enhanced payment to cover the costs. One CHT representative noted that EHRs were not advanced enough to satisfy NCQA requirements. Practices had the financial burden of customizing their EHRs to meet NCQA standards, a sometimes lengthy process, and a log of these customizations had to be included for NCQA 2014 recognition.

Most practices initially were overwhelmed by the increasing NCQA standards, but they generally agreed that the NCQA process standardized best practices and improved the overall quality of their PCMHs. Throughout the demonstration, the required labor and time needed to achieve recognition was practices' most common complaint. These practices said, however, that once implemented and used regularly, these standards were beneficial.

Practice staffing changes. During the first site visits to Vermont in 2012, Blueprint for Health practices used MAPCP Demonstration funds to add additional staff to the health care teams. New specialized employees were hired for practices and CHTs, including behavioral health specialists, case managers, wellness nurses, social workers, dietitians, pharmacists, and health coaches, in recognition of the need for more specialized care and increased focus on mental health and substance abuse. In addition, with the adoption and implementation of EHRs and DocSite, some practices hired data coordinators and IT assistants. Practices and CHTs stated that staffing additions had been the most significant benefit from participation in the Blueprint for Health, and that they had filled gaps in care.

During the second round of site visits in 2013, CHTs continued to fill gaps in care by increasing the number of dietitians, certified diabetic educators, social workers, wellness nurses, care coordinators, behavioral health professionals, and panel managers. Social workers were allocated more time to spend at practices. They increased follow-up with patients, provided additional resources to meet family, child, or elderly specialized needs, and freed time for physicians and nurses to focus on their clinical duties. Providers noted that there was a shortage of psychiatric resources in Vermont and that more mental and behavioral health professionals were needed. Providers were also interested in adding pharmacists to the practices or CHTs.

During the final round of site visits in 2014, practice staffing largely remained the same since the previous site visit. The most significant change was an increase in such CHT staff as care coordinators, social workers, dietitians, asthma educators, and psychiatrists. Most practices agreed that they had better care coordination and access to social workers compared to the

previous year. Practices in rural areas mentioned difficulties in recruiting doctors and physician assistants (PAs), especially when numerous doctors left or retired at the same time.

Health information technology. Health IT was initially the biggest challenge practices faced when joining the Blueprint for Health. Practices were especially critical of DocSite, a Web-based clinical registry system accessible to providers statewide, with capabilities such as reporting and electronic prescribing. Some providers entered information directly into DocSite, whereas others transferred the information into DocSite from their EHR. DocSite was viewed by providers as an unreliable system that created additional work with little value added. The SASH program staff, however, relied on DocSite to compile and store health information about their participants. During the later site visits, most practices noted a shift from DocSite to EHRs offered by VITL. VITL provided assistance to practices that were adopting EHRs. Although the learning curve was steep, providers were able to adapt their EHRs to increase capabilities, make it easier to find information quickly, and print medical summaries or care plans to discuss with patients. EHRs were helpful for patient tracking, patient referrals, and reporting capabilities, which were all helpful during the NCQA recognition process. In 2014, providers said that the EHRs were more standardized and accessible, which encouraged a higher level of acceptance.

In the MAPCP Demonstration provider survey administered in early 2015, described in *Section 6.2.4*, 85 percent of participating providers reported a high level of EHR adoption, significantly lower than the eight-state MAPCP Demonstration average (93%). According to the site visits, however, many practices not using EHRs initially saw a huge shift from paper to electronic records during 2014. Providers initially using EHRs made enhancements to their use of EHRs, such as improved tracking of patient progress and population health management. VITL Access was a new platform for aggregating EHR information into one secure portal statewide, but, during 2014, no providers had mentioned using the system. Some practices also adopted use of patient portal platforms to allow patients to make appointments, send doctors messages, refill prescriptions, and view medication lists and visit summaries.

Patient awareness of the patient-centered medical home. Only a handful of focus group participants had heard the term “medical home,” and, of those, only one or two knew what it was. Most participants had never heard this term, but agreed that it sounded like a good idea and that it would improve their health. Some thought that providers do not have enough time to be a PCMH—“It sounds like a good idea, but I don’t think it’s very practical, because most of the doctors around here are so busy now on their own businesses that they can’t get together as a team.” A few others were afraid a PCMH would have been a bureaucracy.

Patient awareness of practice changes. The main change that focus group participants observed over the past few years was the transition to EHRs. Some participants appreciated that all their records were easily accessible to providers and said that it helped with the information exchange between PCPs and specialists. They also felt it cut down on mistakes and made doctors more organized and efficient. Others, however, were less enthusiastic about the transition to EHRs, explaining that there was a lack of eye contact and that there were always problems with the computers. Patient portals were another health IT-related change that many participants noticed. Some said that they liked being able to e-mail their provider with questions and that they got test results faster than in the past.

Some participants noted that providers seemed more caring and more communicative, and that they listened more attentively. A couple participants mentioned that providers asked different questions, such as “What’s concerning you?”, “What are your goals?”, and “Do you have pain?” Many participants noticed more coordination between PCPs and specialists and that providers seemed to be working as a cohesive team and talking to each other. Some participants mentioned better follow-up after an emergency situation, such as receiving phone calls the next day to make sure they were okay. Many participants mentioned that wait times were shorter, though some explained that the wait time in the exam room could be quite long. Several participants mentioned that appointments were only 15 minutes long and that providers seem to be overworked. A few people noted that there were more nurse practitioners (NPs) and PAs. Many observed that staff keeps changing.

6.2.2 Technical Assistance

Through the Blueprint for Health, practices receive technical assistance in a variety of ways, such as receiving the Blueprint for Health’s practice profiles, IT help from VITL, NCQA recognition assistance from EQuIP, and help with renewing NCQA recognition from CHTs. The assistance aimed at helping practices meet NCQA PCMH recognition standards was found particularly useful, especially by small practices and solo practitioners, who said they would have been unable to complete this otherwise. Some practices engaged in Blueprint for Health learning collaboratives, such as one on asthma care management and another on care coordination. One practice had found these useful, but another said it was unrealistic to send their staff to these events for multiple days. A few practices engaged in the sprint process, used initially to improve use of DocSite but then altered to focus on EHR data quality. Overall, the technical assistance provided by the Blueprint for Health was found to be useful when providers and CHTs chose to use the resources.

Most practices received reports from multiple sources, such as insurers, pharmaceutical companies, RTI International, and the Blueprint for Health. Perspectives varied on the usefulness of these reports. A positive finding is that the Blueprint for Health’s practice profiles, initiated in 2013, were not noticed during our 2013 site visits, but by 2014 many practices had seen the practice profiles and commented on their usefulness. The practice profiles, produced by the Blueprint for Health using Vermont’s all-payer claims database helped practices compare their performance to other practices throughout the region and state. They also helped practices plan initiatives for quality improvement and care coordination and supported collaboration among practices. The reports provided by insurers, pharmaceutical companies, and MAPCP Demonstration were less popular.⁷ Data typically were described as old or inaccurate, so practices did not find these reports useful. During the second and third year of site visits, many practices indicated that they were not aware that the MAPCP Demonstration provided feedback reports through a Web Portal, but many said they would be interested in seeing them.

6.2.3 Payment Supports

PMPM payments from insurers participating in the Blueprint for Health were designed to support practice transformation and enhance team-based care and care coordination. Throughout

⁷ Under Vermont Regulation H.200 9-03, insurers were required to report key priorities to practices and identify underperformers. Although this regulation has been dismantled, some insurers continue to generate these reports.

the demonstration, practices used these payments to hire, embed, and enhance staff, such as social workers, dietitians, and mental health professionals. Other practices used payments to build their health IT capabilities, and some smaller practices used their funds to support day-to-day operations.

Although payments averaged \$2.00–\$2.50 PMPM, most practices felt that the money did not fully cover the additional services they were expected to provide as PCMHs, and they were critical of the lack of compensation for meeting higher NCQA standards. Practices that qualified under NCQA 2011 standards were required to meet higher benchmarks than those who qualified under 2008 standards, but payments were nearly the same. One practice mentioned that their ideal payment should have been close to \$6.00–\$8.00 PMPM to support and fully cover additional costs. Overall, practices were appreciative of the funds from the Blueprint for Health and noted its effective impact on providing better services for patients. Throughout 2013 and 2014, practices said that further payment would have been needed to improve behavioral health integration. Providers desperately wanted to embed more psychiatrists and therapists to provide short-term mental health care and services, such as depression assistance, but, without the support, this was often not financially viable.

6.2.4 Practices’ Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify those activities associated with the PCMH model in which their practice regularly engaged. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level of adoption, and one representing a high level of adoption. Survey findings presented in **Table 6-6** and **Table 6-7** focus on the percentage of providers who reported a high level of adoption of PCMH activities, and we note results that are significantly different from the average for the eight MAPCP Demonstration states.

The Overall Practice Transformation Index reported in **Table 6-6** is the percentage of activities adopted at a high level, based on the 23 PCMH activities noted in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). Vermont providers reported engaging in 74 percent of PCMH activities at a high level, comparable to the average percentage across the eight MAPCP Demonstration states (72%). The share of access to care activities that Vermont providers reported engaging in was significantly higher (82%) than the eight-state MAPCP Demonstration average (76%), and the share of health IT activities that Vermont providers reported engaging in was significantly lower (84%) than the eight-state MAPCP Demonstration average (93%).

Table 6-6
Vermont: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in Vermont (N = 122 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	74	72
Practice Transformation Index by domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	82*	76
Care management (without involvement of other providers)	79	78
Care coordination (involving other health care providers)	71	68
Patient engagement and self-management	57	57
Quality improvement	70	76
Health information technology	84*	93

NOTE:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 6-7 indicates that the percentage of providers in Vermont who reported a high level adoption of particular PCMH activities was comparable to the MAPCP Demonstration eight-state average for 16 of the 23 PCMH questions in our survey. Survey questions that Vermont providers answered differently from providers in the other seven MAPCP Demonstration states, on average, are noted in **Table 6-7** and discussed in the relevant outcome sections in this chapter.

Briefly, Vermont providers performed better than the eight-state average for four activities:

- responding to urgent problems (91% in contrast to 86%);
- using alternate types of contact with practice team, such as e-mail, Web, or text messages (87% in contrast to 71%);
- regularly performing medication reviews for patients on multiple medications (98% in contrast to 97%); and
- consistently tracking and following up with patients about test results (92% in contrast to 87%).

Meanwhile, Vermont providers performed worse than the eight-state average for three activities:

- organizing the focus of patients' visits around their specific reason, with consistent attention to ongoing chronic care and prevention needs (74 % in contrast to 84%);

- basing quality improvement activities on systematic approaches and using them in meeting organizational goals (71% in contrast to 81%); and
- using EHRs for basic functions and more advanced functions and generating quality measure data for quality improvement purposes (84% in contrast to 93%).

These results are contextualized and discussed in greater detail in subsequent sections of this chapter.

Table 6-7
Vermont: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Vermont (N = 122 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	92	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	91*	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care and in-person during some evenings or weekends. The practice actively participates in coordinating ER care and follows up with patients after visits to the ER.	63	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent time frame.	87*	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	75	74
Care Management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	64	59
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	74*	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	98*	97

(continued)

Table 6-7 (continued)
Vermont: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Vermont (N = 122 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	82	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	74	78
Tracking and follow-up with patients about test results... Is consistently done.	92*	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	82	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	50	50
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	91	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	66	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified time frame.	77	80
Patient Engagement and Self-Management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	69	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	50	51

(continued)

Table 6-7 (continued)
Vermont: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey Question	% in Vermont (N = 122 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Involving patients and caregivers in health care decision making... Is a priority and is systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, or teach-back techniques.	62	67
Patient self-management support for chronic conditions... Is provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	52	57
Quality Improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	71*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	76	79
Health Information Technology (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions, such as clinical decision support (e.g., medication guides/ alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	84*	93

NOTE:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant from the average for all MAPCP Demonstration states at the 10 percent level.

6.2.5 Discussion of Practice Transformation

Throughout the demonstration, Blueprint for Health practices have focused on achieving transformational improvements in the way they managed and delivered care, engaged patients, and used health IT. Similar to the participating practices in all eight MAPCP Demonstration states, almost three-fourths of PCMH activities in Vermont were implemented at a high level. PCMH activities involving access to care, specifically the response to urgent patient problems and using alternate types of contact, had notably higher usage among Vermont Blueprint for Health practices than the average MAPCP Demonstration practice among all participating states. This high effort was noticed during the later site visits, when practices explained their shift from hiring new staff and being sometimes unsure how to use them, to fully integrating the staff into

the practice operations. Practices adapted their routines to meet updated standards, and, as a result, they experienced better engagement with their care coordinators and patients through greater use of CHT staff, growth in staff capacity to support higher-risk individuals, and increased use of patient portal platforms. Practices overwhelmingly agreed that the increased access to and use of CHT care coordinators within practices has lightened physicians' workload and has provided increased access to health services for patients.

EHR implementation was initially a huge challenge for practices joining the Blueprint for Health but gained wider acceptance as VITL has provided technical assistance and helped practices transition to EHRs from the negatively perceived DocSite system. In 2014, many practices we spoke to had been transitioning from paper records to EHRs, and they had discovered ways to make their EHR more efficient and customizable to their patients' needs. About 85 percent of Blueprint for Health providers reported the use of EHRs in our provider survey, and, if this number follows the positive trends described during the site visits, this likely will rise toward the overall demonstration average.

Throughout all site visits, a common theme was that, although financial support through the Blueprint for Health was beneficial, it did not fully support the advancements that practices were expected to make as a PCMH. Payments were mostly allocated to support CHTs and care coordination, which has supported practices' service capabilities and transformation efforts. This financial support has had a visible impact, but providers also saw a significant need for more funding to integrate behavioral health care more effectively into their practices.

6.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes made by practices that were aimed at improving care quality, patient safety, and patient health outcomes (*Section 6.3.1*); impacts observed in actual utilization of services and clinical quality (*Section 6.3.2*); and a synthesis of these findings (*Section 6.3.3*).

6.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

Implementation of the Blueprint for Health resulted in practice changes aimed at improving the quality of care, patient safety, and health outcomes for Medicare and Medicaid beneficiaries. In Year One, the Blueprint for Health expected that, by the end of the MAPCP Demonstration, they would increase the proportion of patients receiving guideline-based care for prevalent chronic conditions and recommended health maintenance and increase the proportion of patients with control of their chronic health conditions by 10 percent. The six key Blueprint for Health features developed to achieve these improvements consisted of

- establishing quality improvement teams in practices,
- tracking quality measures,
- enhancing staffing and monitoring to ensure that practice care complies with evidence-based guidelines,

- offering wellness programs in the community,
- increasing efforts at medication reconciliation and falls prevention, and
- reducing hospitalizations.

Practices initiated these features early in the demonstration and engaged in considerably more quality improvement activities in following years. The quality improvement teams at each practice worked on quality of care projects and assisted practices in tracking quality measures in areas such as asthma, diabetes, heart disease, cancer screening, preventive health, sexually transmitted diseases, and mental health screening. CHTs provided educational programs about health topics, such as nutrition and diabetes, and they also referred patients to community and family wellness programs, such as the Healthier Living Workshops and tobacco cessation activities. A small number of focus group participants mentioned taking part in Healthier Living Workshops on nutrition, exercise, diabetes, smoking cessation, and falls prevention, with which they were generally happy. CHT coordinators and SASH wellness nurses increased their efforts in medication management and teaching self-management for medication usage. The SASH program measured and tracked fall rates and assessed in-home fall risks, which the SASH team felt was hugely beneficial in preventing potential ER visits. To reduce further preventable hospitalizations and ER visits, CHTs helped connect patients to their PCPs more quickly following their hospital visits.

Throughout Years Two and Three, practices reported improvements in their diabetes care, new patient screenings (e.g., screening for depression using the Patient Health Questionnaires PHQ-2 and PHQ-9), higher usage of EHR data to guide patient care, establishing weekly staff meetings to discuss improving patient care, and the increased use of preventive care, such as physical exams. During the focus groups, participants noted that they felt the EHRs helped their PCPs remember specifics about their medical history, and they appreciated not having to recap their whole medical history each time. Many practices also mentioned that they were conducting more follow-up with high-risk populations and ER users. As mentioned previously in **Section 6.2.1**, some focus group participants explained that they received phone calls from their provider checking on their status after visiting the ER or having another emergency. According to SASH staff, there were improvements in certain quality measures, including increases in the number of participants with a PCP, higher nutrition scores, reduced falls, and more immunizations. The Blueprint for Health was credited with encouraging this culture of change and heightening the focus on quality improvement. From a patient perspective, several focus group participants commended the strong teamwork of their primary care team and the fact that their providers understand their needs.

The provider survey found that a significantly lower share of providers (72%) reported engaging in systematic quality improvement activities than the average among MAPCP Demonstration states (81%). The lower percentage was unexpected given the numerous quality improvement activities that practices described during the site visits, but the regular collection and incorporation of patient feedback about practice improvement was in line with the average among MAPCP Demonstration states, at about 78 percent.

6.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

Blueprint for Health was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between Blueprint for Health and two CGs: PCMHs and non-PCMHs.

- **Table 6-8** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 6-9** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population included breast cancer screening, cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with Blueprint for Health in the likelihood of receiving the service in Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of receiving care compared to the CG. Blueprint for Health beneficiaries were expected to have positive values for all indicators, except the “none” indicator in diabetes care.

Although 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Vermont, the process of care indicators were measured at the annual level, so only the first 12 quarters of data for an individual were used.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to Blueprint for Health practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 6-10** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the Blueprint for Health in Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared to the CG. If Blueprint for Health was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures included all 14 quarters of data.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 6.3.3**.

Table 6-8
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 10,609)	-1.24*	[-2.10, -0.38]	-0.60	[-1.72, 0.52]
Year Two (N = 7,858)	0.19	[-1.00, 1.38]	-1.94*	[-3.72, -0.17]
Year Three (N = 5,224)	1.98*	[0.52, 3.44]	0.26	[-1.66, 2.17]
Overall (N = 11,530)	-0.05	[-0.84, 0.73]	-0.86	[-2.12, 0.41]
Retinal eye examination				
Year One (N = 10,609)	0.42	[-1.09, 1.94]	-1.31	[-3.08, 0.47]
Year Two (N = 7,858)	-3.56*	[-5.14, -1.97]	-1.31	[-5.21, 2.59]
Year Three (N = 5,224)	-2.54	[-8.09, 3.01]	1.15	[-1.84, 4.14]
Overall (N = 11,530)	-1.55	[-3.19, 0.09]	-0.77	[-2.88, 1.35]
LDL-C screening				
Year One (N = 10,609)	-5.41*	[-8.72, -2.10]	0.22	[-2.72, 3.17]
Year Two (N = 7,858)	-1.52	[-3.47, 0.43]	-0.59	[-3.67, 2.48]
Year Three (N = 5,224)	-3.81	[-8.02, 0.39]	-1.18	[-5.23, 2.87]
Overall (N = 11,530)	-3.77*	[-6.10, -1.44]	-0.36	[-3.32, 2.60]
Medical attention for nephropathy				
Year One (N = 10,609)	-1.79	[-4.19, 0.61]	-0.16	[-4.27, 3.95]
Year Two (N = 7,858)	-0.87	[-3.45, 1.70]	-1.58	[-5.39, 2.24]
Year Three (N = 5,224)	-0.71	[-4.04, 2.62]	4.27*	[0.68, 7.86]
Overall (N = 11,530)	-1.25	[-3.06, 0.57]	0.35	[-2.95, 3.65]

(continued)

Table 6-8 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received all 4 diabetes tests				
Year One (N = 10,609)	-2.36*	[-4.27, -0.45]	0.78	[-1.74, 3.31]
Year Two (N = 7,858)	-3.41*	[-6.49, -0.33]	-1.87	[-6.42, 2.68]
Year Three (N = 5,224)	-2.94	[-6.53, 0.66]	3.80*	[0.49, 7.10]
Overall (N = 11,530)	-2.83*	[-4.33, -1.33]	0.57	[-2.20, 3.33]
Received none of the 4 diabetes tests				
Year One (N = 10,609)	0.67	[-0.12, 1.45]	0.09	[-0.64, 0.81]
Year Two (N = 7,858)	-0.59	[-1.45, 0.28]	0.56	[-0.15, 1.27]
Year Three (N = 5,224)	-0.53	[-1.37, 0.31]	0.22	[-0.57, 1.01]
Overall (N = 11,530)	-0.01	[-0.61, 0.59]	0.27	[-0.35, 0.89]
Total lipid panel				
Year One (N = 16,445)	-1.38	[-3.83, 1.07]	-2.44	[-4.99, 0.12]
Year Two (N = 12,791)	-1.49	[-3.89, 0.91]	-4.55*	[-7.60, -1.51]
Year Three (N = 9,160)	-4.06	[-8.24, 0.12]	-1.70	[-5.88, 2.48]
Overall (N = 19,923)	-2.06	[-4.28, 0.17]	-2.97*	[-5.78, -0.15]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
 - Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
 - Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.
- CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.
- * Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that Blueprint for Health decreased some of the process of care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 6-8** shows the following:

- The *overall* likelihood of receiving a **low-density lipoprotein cholesterol (LDL-C) screening and all four diabetes tests** decreased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to PCMH comparison practices only.
- The *overall* likelihood of receiving a **total lipid panel** decreased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, receipt of none of the diabetes tests, and retinal eye examinations.

Table 6-9
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	-0.56	[-2.57, 1.46]	-0.22	[-2.35, 1.91]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	-1.41	[-4.80, 1.98]	-2.14	[-5.32, 1.04]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	-0.90	[-4.60, 2.80]	-2.91	[-7.78, 1.96]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	-0.97	[-3.22, 1.29]	-1.66	[-4.50, 1.17]
Retinal eye examination										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	-6.44	[-13.28, 0.39]	-4.56	[-11.30, 2.18]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	-2.29	[-8.99, 4.41]	3.87	[-2.76, 10.49]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	-4.47	[-12.13, 3.19]	-0.01	[-11.07, 11.04]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	-4.37	[-9.92, 1.18]	-0.20	[-6.03, 5.62]
LDL-C screening										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	-6.24*	[-11.36, -1.13]	-8.07*	[-15.00, -1.13]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	-8.98*	[-17.09, -0.87]	-9.15*	[-15.40, -2.90]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	-7.05	[-18.43, 4.34]	-5.15	[-14.88, 4.59]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	-7.48*	[-14.04, -0.91]	-7.68*	[-13.85, -1.51]
Medical attention for nephropathy										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	4.73	[-2.97, 12.43]	-2.48	[-7.03, 2.07]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	0.20	[-9.51, 9.92]	5.94	[-0.50, 12.38]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	5.95	[-5.95, 17.86]	-5.09	[-14.49, 4.31]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	3.38	[-4.46, 11.22]	-0.06	[-3.44, 3.33]

(continued)

Table 6-9 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received all 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	-4.12	[-12.76, 4.51]	-5.81	[-13.09, 1.48]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	1.09	[-4.71, 6.89]	5.94	[-1.70, 13.58]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	-0.92	[-8.92, 7.08]	3.72	[-8.44, 15.88]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	-1.32	[-6.08, 3.43]	1.13	[-6.13, 8.39]
Received none of the 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	1,534	0.50	[-1.77, 2.77]	0.61	[-0.92, 2.14]
Year Two	N/A	N/A	N/A	N/A	N/A	1,587	1.74	[-1.36, 4.84]	-0.92	[-2.97, 1.14]
Year Three	N/A	N/A	N/A	N/A	N/A	1,154	0.22	[-3.78, 4.22]	1.47	[-1.15, 4.10]
Overall	N/A	N/A	N/A	N/A	N/A	2,426	0.88	[-1.42, 3.18]	0.28	[-0.98, 1.53]
Breast cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	5,647	4.80*	[1.23, 8.36]	3.61*	[0.64, 6.57]
Year Two	N/A	N/A	N/A	N/A	N/A	5,525	-1.99	[-7.38, 3.40]	-2.05	[-7.47, 3.38]
Year Three	N/A	N/A	N/A	N/A	N/A	3,700	-0.07	[-4.83, 4.70]	1.10	[-2.63, 4.83]
Overall	N/A	N/A	N/A	N/A	N/A	8,307	1.07	[-2.90, 5.03]	0.88	[-2.38, 4.14]
Cervical cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	12,903	-0.06	[-2.31, 2.19]	-0.58	[-2.11, 0.95]
Year Two	N/A	N/A	N/A	N/A	N/A	12,621	-0.42	[-3.09, 2.25]	-1.92	[-3.96, 0.12]
Year Three	N/A	N/A	N/A	N/A	N/A	8,067	-1.02	[-3.07, 1.02]	-2.31	[-6.55, 1.92]
Overall	N/A	N/A	N/A	N/A	N/A	19,012	-0.43	[-2.48, 1.62]	-1.50	[-3.06, 0.05]

(continued)

Table 6-9 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Appropriate use of antidepressant medication management: 12 weeks										
Year One	N/A	N/A	N/A	N/A	N/A	4,472	0.75	[-3.43, 4.94]	1.03	[-6.51, 8.57]
Year Two	N/A	N/A	N/A	N/A	N/A	3,051	-0.08	[-6.12, 5.96]	-4.19	[-10.39, 2.02]
Year Three	N/A	N/A	N/A	N/A	N/A	1,921	13.10*	[7.35, 18.85]	9.11*	[2.95, 15.26]
Overall	N/A	N/A	N/A	N/A	N/A	7,260	3.08	[-1.08, 7.25]	1.03	[-3.52, 5.58]
Appropriate use of antidepressant medication management: 6 months										
Year One	N/A	N/A	N/A	N/A	N/A	4,472	7.28*	[5.25, 9.31]	0.03	[-4.86, 4.92]
Year Two	N/A	N/A	N/A	N/A	N/A	3,051	4.91	[-0.99, 10.81]	-3.16	[-8.19, 1.87]
Year Three	N/A	N/A	N/A	N/A	N/A	1,921	11.44*	[7.34, 15.54]	8.57*	[5.73, 11.41]
Overall	N/A	N/A	N/A	N/A	N/A	7,260	7.38*	[4.36, 10.41]	0.79	[-2.61, 4.19]
Appropriate use of asthma medications										
Year One	1,042	-10.55	[-30.70, 9.59]	-8.24	[-20.49, 4.01]	1,159	-2.54	[-7.72, 2.64]	-5.81*	[-10.39, -1.22]
Year Two	0,987	-11.86	[-35.82, 12.11]	-8.64	[-22.10, 4.83]	1,132	-1.33	[-6.36, 3.70]	-12.29*	[-19.92, -4.66]
Year Three	0,573	-20.68	[-57.95, 16.59]	-11.07	[-24.32, 2.17]	0,761	-0.52	[-9.47, 8.43]	-14.03*	[-23.56, -4.49]
Overall	1,869	-13.28	[-38.43, 11.87]	-9.01	[-21.46, 3.43]	2,150	-1.59	[-7.30, 4.13]	-10.26*	[-16.25, -4.28]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found some evidence that the Blueprint for Health impacted the process of care measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Among Medicaid children, we found no evidence of an impact on the appropriate use of asthma medications. Specifically, **Table 6-9** shows the following:

- The *overall* likelihood of **LDL-C screening** decreased among Blueprint for Health adult Medicaid beneficiaries compared to adult beneficiaries assigned to either PCMH or non-PCMH comparison practices.
- The *overall* likelihood of **appropriate use of antidepressant medication management at 6 months** increased among Blueprint for Health adult Medicaid beneficiaries compared to adult beneficiaries assigned to PCMH comparison practices only.
- The *overall* likelihood of **appropriate use of asthma medications** decreased among Blueprint for Health adult Medicaid beneficiaries compared to adult beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examinations, receipt of all four diabetes tests, receipt of none of the diabetes tests, medical attention for nephropathy, breast cancer screening, and cervical cancer screening.

Table 6-10
Vermont: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 50,276)	-0.37	[-1.19, 0.46]	-0.17	[-0.64, 0.31]
Year Two (N = 62,339)	-0.46	[-1.53, 0.62]	0.30	[-0.32, 0.92]
Year Three (N = 70,149)	-0.96	[-2.28, 0.37]	0.46	[-0.10, 1.01]
Overall (N = 84,151)	-0.76	[-1.71, 0.19]	0.12	[-0.36, 0.61]
PQI admissions—overall ²				
Year One (N = 50,276)	1.69	[-0.06, 3.44]	2.02*	[1.07, 2.96]
Year Two (N = 62,339)	1.80	[-0.19, 3.79]	1.42*	[0.47, 2.37]
Year Three (N = 70,149)	0.91	[-0.37, 2.19]	1.70*	[0.52, 2.89]
Overall (N = 84,151)	0.91	[-0.44, 2.26]	1.55*	[0.72, 2.38]
PQI admissions—acute ³				
Year One (N = 50,276)	0.53	[-0.30, 1.36]	0.88*	[0.17, 1.59]
Year Two (N = 62,339)	1.06*	[0.07, 2.04]	0.47	[-0.21, 1.15]
Year Three (N = 70,149)	0.70	[-0.23, 1.62]	1.25*	[0.30, 2.21]
Overall (N = 84,151)	0.60	[-0.11, 1.31]	0.78*	[0.08, 1.48]

(continued)

Table 6-10 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 50,276)	1.15	[-0.10, 2.41]	1.12*	[0.16, 2.07]
Year Two (N = 62,339)	0.86	[-0.39, 2.12]	0.93*	[0.06, 1.80]
Year Three (N = 70,149)	0.36	[-0.77, 1.50]	0.62*	[0.00, 1.24]
Overall (N = 84,151)	0.45	[-0.67, 1.57]	0.82*	[0.17, 1.47]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that Blueprint for Health increased the rate of preventable hospitalizations, though statistical significance was not seen across both CGs. Specifically, **Table 6-10** shows that:

- The *overall* rate of **overall, chronic, and acute PQI admissions** increased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events.

6.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

During our site visits, Vermont practices described many activities implemented during the Blueprint for Health to improve the quality of care provided to patients and their health outcomes. These efforts focused on using evidence-based guidelines to deliver care and developing quality improvement teams that worked on quality of care projects and tracked quality measures. In addition, CHT coordinators and SASH staff worked collaboratively to provide educational health programs, referred patients to community wellness programs, followed up with patients after hospital discharges, and reconciled medications. Focus group participants who took part in the wellness programs generally were pleased. Some also noticed an increase in follow-up after ER visits. As the demonstration progressed, CHT coordinators' responsibilities also included panel management through the identification of patients with certain chronic conditions, such as diabetes, and advising these patients of unmet preventive care needs.

Despite the aforementioned activities, the data analysis did not show that Vermont had much success in improving processes of care for diabetes and asthma patients or population measures of health outcomes. The only significant improvement occurred during Year Three among Medicare beneficiaries with diabetes. Relative to beneficiaries in the non-PCMH CG, the rates of receiving medical attention for nephropathy and receiving all four diabetes tests increased. Relative to beneficiaries in the PCMH CG, however, over the first 14 quarters of the MAPCP Demonstration, there were decreases in the likelihood that Medicare beneficiaries received retinal eye exams, LDL-C screening, medical attention for nephropathy, all four diabetes tests, and a total lipid panel. For Medicaid adults with diabetes, there were also decreases in the likelihood of receiving LDL-C screening. Further, the likelihood of appropriate use of asthma medication decreased among Medicaid children and adults with asthma. These decreases relative to the PCMH comparison practices may reflect the fact that the Blueprint for Health PCMHs did not perform as well as other PCMHs at improving these measures among Medicare beneficiaries. However, the decrease in the likelihood of LDL-C screenings for Medicaid occurred relative to both CGs. These unfavorable findings also allude to the aforementioned activities implemented with a focus on improvements in quality of care measures and evidenced-based care not being reflected in our analyzed process of care measures. For health outcomes, there were similar unfavorable estimates in our data analysis—we saw increases in rates of PQI admissions for Medicare beneficiaries, as opposed to decreases.

To improve quality of care, practices instituted meetings to discuss quality metrics and ways to improve them. Although in the results from the provider survey Vermont ranked lower than average across the eight MAPCP Demonstration states in the percentage of providers engaging in systematic quality improvement activities, the survey captures the level of activities at a point in time and not a change across time. Thus, it is possible that Vermont did experience an increase in quality improvement activities as a result of the above efforts during the MAPCP Demonstration that was not reflected in the survey findings.

6.4 Access to Care and Coordination of Care

This section describes the changes made by practices aimed at improving access to care and coordination of care (*Section 6.4.1*), impacts observed in access to care and coordination of care (*Section 6.4.2*), and a synthesis of these findings (*Section 6.4.3*).

6.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

The Vermont Blueprint for Health required practices to achieve at least NCQA PCMH Level 1 standards, which implied compliance with the NCQA required elements regarding access during and after office hours, implementation of a care management program, and tracking of referrals and follow-up. To meet these requirements, practices engaged in a number of activities.

In Year One, most practices made changes to improve access to same-day appointments, often motivated by patients' conditions (e.g., patients with cancer) or patients recently discharged from the hospital. Several practices reported that they did not make changes to their hours of operation because they were always accessible by phone during non-office hours. In Years Two and Three, practices continued to make improvements in the availability of same-day appointments and expanded after-hours access by offering 24-hour-a-day, 7-day-a-week availability by phone and extended hours during weekdays and weekends. Lack of availability of weekend staff and patient transportation were cited as ongoing barriers that practices worked to overcome.

Provider survey responses reflect the emphasis on access to care described during the site visits. Ninety-one percent of Vermont providers reported having a system to triage patient problems through phone, e-mail communications, or face-to-face visits, with same-day appointments usually being available. In contrast, on average only 86 percent of providers across all MAPCP Demonstration states reported engaging in these activities. CAHPS PCMH survey respondents, however, provided mixed feedback in regard to practice efforts to improve access, with 93 percent of respondents reporting that they were able to get an appointment for care that they needed right away. Similarly, focus group participants had mostly positive experiences, reporting few problems getting an appointment with their provider for urgent needs. Also, most reported that they did not have problems getting an appointment with their PCP for regular appointments, especially because they were usually made at the time of another visit. Ninety-six percent of survey respondents reported that they were able to make an appointment for a check-up or routine care as soon as they needed. However, only 45 percent of survey respondents reported that they were able to obtain a same-day appointment. Most focus group participants noted that if a same-day appointment was necessary, they may not have seen their PCP, but rather another provider, NP, or PA.

In Year Two, several practices launched online patient portals that allowed patients to e-mail their provider with questions, request appointments, receive prescription refills, and view their medication lists. Telemedicine was another new feature implemented by several practices, allowing patients to visit their provider remotely through electronic means. According to the provider survey findings, 87 percent of Vermont providers reported providing patients alternate types of contact (e-mail, Web, text message) with the practice team, compared to 71 percent of providers across all MAPCP Demonstration states. However, only about one half of the focus group participants had heard of the patient portal, and one-quarter reported using it for things like scheduling appointments, checking test results, requesting prescription refills, and asking their

provider questions. Thus, additional efforts should be focused on educating patients on the availability of these electronic communication methods, such as the patient portals.

Most of the focus group participants who had used the patient portals were very enthusiastic about it. Some participants who had not used the portal were very interested in trying it, but others were not, especially participants in the dually eligible and Medicaid groups. Some participants had tried to access the portal, but could not get their password to work or thought it was “too much,” so they stopped using it. Still others did not have a computer or Internet access to be able to use the portal from their homes.

By Year Three, nearly all providers we spoke with during the site visit offered expanded office hours, but only 63 percent of the provider survey respondents reported providing after-hours access to patients for their urgent care needs. This did not differ significantly from the eight-state MAPCP Demonstration average. Interestingly, 81 percent of CAHPS PCMH survey respondents indicated that their provider’s office had given them information on what to do if they needed care outside of normal business hours (e.g., evenings, weekends, or holidays), although only 55 percent of respondents were usually or always able to get the care they needed from their primary care practice during evenings, weekends, or holidays. Several focus group participants noted using a walk-in clinic or urgent care on the weekend when their primary care practice was closed. Most said that they avoided going to the ER because of long wait times. These findings indicate that a greater emphasis is needed on providing patients with better access to care during nonbusiness hours.

To address the NCQA requirement of care management, the Blueprint for Health created CHTs that coordinate care for practices’ patient populations. CHT staff, who were either embedded within a practice or at a central office location, worked with patients by connecting them with their PCMH and other needed services, arranged for transportation to medical appointments, provided nutrition education, helped patients identify self-management goals, and made community resource referrals to the SASH program, Healthier Living Workshops, and other treatment services. In Year One, several practices reported the value of having hot hand-offs between the provider and CHT staff, such as a social worker, during a patient visit, or scheduling appointments with a dietician or other support staff on the same day as a patient visit. Practices reported using CHT staff, such as the behavioral health specialist and social worker, and other community resources, such as the visiting nurse association (VNA), to help with their patients’ social and medical needs (e.g., finding sources of needed medications that were affordable for patients, referrals to substance abuse treatment services). Providers universally agreed that CHTs allowed their practices to offer patients better access to care, but difficulties in referring patients for dental and mental health services were reported because of provider shortages. Interestingly, only one focus group participant was familiar with CHTs. More focus group participants mentioned that they received services from the VNA, the Area Agency on Aging, or Councils on Aging. In general, there was confusion about where the care managers or case managers came from and why they had been offered these services. Those who used them were happy with the services.

Supplementing CHTs were SASH teams that provided access to services for beneficiaries residing in subsidized housing properties and the surrounding communities. SASH teams made home visits for medication reconciliation and to check on food in the homes of patients with

diabetes; worked with patients transitioning from nursing home or hospital to home; and referred patients to CHT and other community resources for needed services. In Year One, SASH teams began to learn their roles and how best to support CHTs to provide coordinated care to SASH participants. One major challenge to coordinating care, however, was the lack of a centralized mechanism by which CHTs and SASH teams could easily communicate with other service providers about their patients. Coordination of care with CHTs and SASH was a major focus for practices in Year Two. Relationships strengthened as roles were further defined and as practices realized the value added for their patients. By Year Three, practices reported an increased use of CHTs and SASH teams to coordinate care more effectively for patients. Practices also reported increased recognition of the SASH program among patients, as SASH became viewed as a reliable resource within the community.

With a few exceptions, the percentage of Vermont providers who reported engaging in care management and care coordination activities addressed in the provider survey was comparable to the eight-state MAPCP Demonstration average. A higher share of Vermont providers (98%) reported conducting a medication review for patients on multiple medications on a regular basis during care transitions, when patients received new medications, and during all regularly scheduled visits, compared to 97 percent of providers across all MAPCP Demonstration states. This is notable given the absence of emphasis on this topic during the site visit interviews with practices. A lower share of Vermont providers reported organizing visits around the specific reason for the patient's visit but with consistent attention to ongoing chronic care and prevention needs (74% of Vermont providers, compared to 84% of providers across the eight MAPCP Demonstration states).

In terms of improving patient follow-up, practices reported using hospital discharge reports or accessing hospital EHRs to identify patients recently discharged to schedule an office visit. CHTs and SASH teams played a major role in providing services that ensured follow-up for patients. In Years Two and Three, practices continued to make changes in how they communicated with other health providers, such as nursing homes and hospitals, to receive more timely discharge information and better follow up with patients. In discussing coordination with hospitals, most focus group participants who had been hospitalized said their doctor knew within a day or two of their hospitalization and that their records transferred to their provider, mostly through the EHRs. Several participants mentioned that their doctor called them upon discharge or visited during their hospital stay. However, a few participants in the Medicaid groups explained that their doctors had not known they were hospitalized and did not even mention their hospitalization at their next visit office visit.

According to the provider survey results, a higher share of Vermont providers (92%) reported consistently tracking and following up with patients about test results, which was significantly higher than the eight-state MAPCP Demonstration average (87%). This finding may reflect the influence of CHTs and SASH teams, as well as practice efforts to improve communication with other health providers.

Furthermore, most focus group participants thought that coordination between their PCPs and specialists worked well and that they seemed to be “working together as a team.” Most participants noted that the use of EHRs made coordination seamless, noting, “They have access to all these records online. It’s amazing.” Three people specifically mentioned noticing positive

changes over the past couple of years. There were some negative feelings in the Medicaid and caregiver groups about how well coordination with specialists was working, however. A few participants mentioned that it depended on which hospital or facility their specialists were part of, because “all the systems don’t talk.” Several caregivers noted that, “There’s an exchange of information, but a gap in actual coordination.” Another said, “The information is there. I don’t know how it is digested between offices.” A couple of participants noted instances of having MRIs repeated by a specialist even though they had just had one. And a few others mentioned problems with medication management because of a lack of coordination between their PCP and specialists. Most participants must be referred from their PCP to a specialist. Their PCP made the initial appointment and then, subsequently, patients could make appointments themselves directly with the specialist. Most participants mentioned that if their PCP made the appointment for them, they were seen much sooner than if they were to make the appointment themselves.

6.4.2 Impacts on Access to Care and Coordination of Care

Blueprint for Health was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between Blueprint for Health and two CGs: PCMHs and non-PCMHs.

- **Table 6-11** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the continuity of care index.
- **Table 6-12** reports on changes in one care coordination measure among Medicaid beneficiaries: 30-day unplanned hospital readmissions. There were concerns about the accuracy of the provider specialty information reported on Vermont’s Medicaid claims, so primary care, medical specialist, surgical specialist, and primary care visits as a percentage of total visits could not be reported.

Blueprint for Health beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under the Blueprint for Health. These measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. For Medicare, estimates in these tables are interpreted as the difference in the rate of events associated with the Blueprint for Health in Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared to the CG. The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. For Medicaid, the non-elderly

Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.

Because 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures included all 14 quarters of data.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that was the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the medical home or by referral from a medical home provider was assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the continuity of care index, which is measured annually, ranges from 0 to 1. Blueprint for Health beneficiaries were expected to have higher values on the continuity of care index. Because of limitations in the Medicaid claims data, the continuity of care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the continuity of care index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with Blueprint for Health in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.

Although 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Vermont, primary care visits as a percentage of total ambulatory care visits and the continuity of care index were measured at the annual level, so only the first 12 quarters of data for an individual were used.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 6.4.3**.

Table 6-11
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 50,276)	-20.26	[-105.75, 65.23]	-44.51	[-109.61, 20.59]
Year Two (N = 62,339)	6.88	[-108.47, 122.23]	-29.26	[-94.64, 36.12]
Year Three (N = 70,149)	-23.31	[-115.58, 68.97]	-20.15	[-85.27, 44.97]
Overall (N = 84,151)	-7.62	[-101.61, 86.38]	-26.85	[-89.61, 35.91]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 50,276)	-5.81	[-48.84, 37.21]	-50.34*	[-76.62, -24.05]
Year Two (N = 62,339)	9.41	[-30.35, 49.18]	-39.74*	[-68.69, -10.78]
Year Three (N = 70,149)	-38.42	[-107.06, 30.22]	-75.27*	[-118.84, -31.71]
Overall (N = 84,151)	-14.52	[-65.49, 36.45]	-58.23*	[-91.01, -25.45]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 50,276)	-3.41	[-11.32, 4.50]	-3.17	[-13.20, 6.86]
Year Two (N = 62,339)	-13.09*	[-21.37, -4.81]	-16.82*	[-29.42, -4.23]
Year Three (N = 70,149)	-33.16*	[-53.54, -12.78]	-22.57*	[-37.87, -7.27]
Overall (N = 84,151)	-21.55*	[-34.29, -8.81]	-16.43*	[-27.67, -5.19]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 46,029)				
1st quintile	-1.50	[-7.71, 4.71]	-1.06	[-4.00, 1.87]
5th quintile	0.99	[-2.89, 4.88]	0.74	[-1.28, 2.77]
Year Two (N = 35,723)				
1st quintile	-1.38	[-6.23, 3.48]	-1.98	[-5.09, 1.14]
5th quintile	0.90	[-2.12, 3.91]	1.30	[-0.69, 3.29]
Year Three (N = 25,183)				
1st quintile	-2.08	[-4.81, 0.64]	-3.73*	[-7.04, -0.42]
5th quintile	1.40	[-0.37, 3.16]	2.38*	[0.40, 4.36]
Overall (N = 54,879)				
1st quintile	-1.59	[-6.33, 3.14]	-1.99	[-4.97, 0.98]
5th quintile	1.06	[-1.90, 4.02]	1.31	[-0.61, 3.24]

(continued)

Table 6-11 (continued)
**Vermont: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:**
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 5,311)	34.55	[-17.26, 86.35]	-9.01	[-57.70, 39.69]
Year Two (N = 6,478)	27.87	[-18.11, 73.86]	-23.36	[-70.83, 24.12]
Year Three (N = 7,025)	-26.44	[-94.17, 41.28]	-70.64*	[-114.09, -27.19]
Overall (N = 16,559)	-1.34	[-53.09, 50.42]	-33.42	[-76.02, 9.17]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 6,722)	-5.42	[-23.57, 12.72]	15.06	[-0.26, 30.38]
Year Two (N = 8,236)	-20.32*	[-40.14, -0.49]	-1.52	[-15.90, 12.86]
Year Three (N = 9,116)	-24.08	[-55.10, 6.93]	-5.94	[-23.50, 11.63]
Overall (N = 20,629)	-20.10	[-42.84, 2.64]	-0.80	[-11.55, 9.95]
COC Index (higher quintile = better continuity of care)				
Year One (N = 64,662)				
1st quintile	-1.13	[-2.98, 0.71]	-1.49*	[-2.79, -0.19]
5th quintile	1.09	[-0.63, 2.82]	1.46*	[0.22, 2.70]
Year Two (N = 54,328)				
1st quintile	-1.28	[-3.64, 1.08]	-2.50*	[-4.27, -0.73]
5th quintile	1.22	[-0.95, 3.39]	2.36*	[0.79, 3.92]
Year Three (N = 39,266)				
1st quintile	-3.67	[-8.19, 0.85]	-4.77*	[-7.24, -2.29]
5th quintile	3.19	[-0.28, 6.66]	4.13*	[2.28, 5.98]

(continued)

Table 6-11 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Overall (N = 70,504)				
1st quintile	-1.81	[-4.40, 0.77]	-2.65*	[-4.23, -1.07]
5th quintile	1.66	[-0.56, 3.88]	2.43*	[1.07, 3.79]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Estimates for primary care visits as a percentage of total visits and the COC Index are interpreted as the percentage point difference associated with the Blueprint for Health in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found that the Blueprint for Health impacted several of the access to care and care coordination measures, primarily when Blueprint for Health beneficiaries were compared to the beneficiaries assigned to non-PCMH practices. Specifically, **Table 6-11** shows the following:

- The *overall* rate of **medical specialist visits** decreased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- The *overall* rate of **surgical specialist visits** decreased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices.

- **Continuity of care**, as measured by concentration of visits, increased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to non-PCMH practices. Specifically, Blueprint for Health decreased the *overall* likelihood that a demonstration beneficiary's continuity of care index was in the lowest quintile and increased the *overall* likelihood that the continuity of care index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, and the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care visits, primary care visits as a percentage of total visits, 14-day follow-up visits following discharge, and 30-day unplanned readmissions.

Table 6-12
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions Year One	N/A	N/A	N/A	N/A	N/A	2,307	2.01*	[0.03, 3.99]	2.11*	[0.20, 4.02]
Year Two	N/A	N/A	N/A	N/A	N/A	3,143	2.02	[-0.42, 4.47]	3.41*	[0.91, 5.91]
Year Three	N/A	N/A	N/A	N/A	N/A	3,465	2.59	[-0.22, 5.40]	0.74	[-1.20, 2.67]
Overall	N/A	N/A	N/A	N/A	N/A	8,160	2.13*	[0.04, 4.21]	2.18*	[0.48, 3.88]

NOTES:

- There were concerns about the accuracy of the provider specialty information reported on Vermont's Medicaid claims, so primary care, medical specialist, surgical specialist, and primary care visits as a percentage of total visits could not be reported.
- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Estimates for primary care visits as a percentage of total visits are interpreted as the percentage point difference associated with the Blueprint for Health in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported because of the low frequency of readmissions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults, we were able to examine only one measure of access to care and care coordination. The likelihood of having 30-day unplanned readmissions increased for Blueprint for Health beneficiaries. Specifically, **Table 6-12** shows that:

- Among Medicaid adults, the *overall* likelihood of having **30-day unplanned readmissions** increased among Blueprint for Health beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices.

6.4.3 Discussion of Access to Care and Coordination of Care

During the first 14 quarters of the MAPCP Demonstration, Vermont implemented many initiatives to increase access to care for Blueprint for Health patients. Practices expanded access by offering after-hours phone access, extended weekday hours, weekend hours, online patient portals, telemedicine, and same-day appointments. Although lack of staff availability made it difficult for some practices to maintain weekend hours, the other efforts were still in place at the end of the 14 quarters of the evaluation period. These efforts were fairly widespread and were implemented at a greater rate than the average across the eight MAPCP Demonstration states at the time of the provider survey.

Although patients were aware of, enthusiastic about, and able to take advantage of these opportunities for greater access to their PCPs, Medicare beneficiaries did not increase their rate of primary care visits (absolute number of visits or as a percentage of all visits). It is possible that the increase in alternative methods for communicating with PCPs reduced patients' needs for primary care office visits. Some of the increase in access to care can be seen in the Blueprint for Health's association with a decrease in the rate of medical specialist visits and surgical specialist visits. This may be a result of providers using phone and e-mail communication to triage patient problems effectively, in particular, steering patients away from a specialist when a specialist was not warranted. Although there was no overall significant change in primary care visits as a percentage of total visits, there was a significant increase in Year Three.

The Blueprint for Health focused heavily on increasing care coordination during the MAPCP Demonstration. The most visible effort was the addition of CHTs and SASH teams. During the first 14 quarters of the demonstration, practices increased their use of CHTs for coordinating patient care, SASH teams experienced improvements in coordinating with practices and CHTs, and the communication between practices and other providers, such as nursing homes and hospitals, improved. Analysis of claims data found an increase in the continuity of care for Medicare beneficiaries during the first 14 quarters of the MAPCP Demonstration, but there was no similar quantitative evidence of Vermont's care coordination efforts in the limited analysis of outcomes among the Medicaid population. Rather, the adult Medicaid beneficiaries had an increase in 30-day unplanned readmissions.

6.5 Beneficiary Experience with Care

This section describes the changes made by practices aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (**Section 6.5.1**); beneficiaries' experiences with key aspects of their care, such as communicating with providers, getting help with self-managing their chronic conditions, and being involved in shared decision-making about treatment courses (**Section 6.5.2**); and a synthesis of these findings (**Section 6.5.3**). This analysis

draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

6.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

Blueprint for Health practices engaged in a number of activities aimed at improving beneficiary experience with care, including increased access to care, either through CHT care coordination or enabling patients to reach their providers more efficiently; providing self-management tools and training to empower patients to manage their own health; and providing links to additional services, such as the Healthier Living Workshops and tobacco cessation programs.

Beginning in Year One of the demonstration, all the practices we spoke with referred patients to the Healthier Living Workshops and other programs, as appropriate. In Year Two, providers continued to refer patients to the Healthier Living Workshops, but their opinions of the workshops were mixed. Some providers explained that the topics were not relevant for their practice patient population (e.g., pediatrics); the workshops were only offered during daytime hours, which made it difficult for patients to attend; and the topics of some workshops were too general (e.g., self-management), making facilitation difficult because patients lacked a commonality. Despite some providers' lack of enthusiasm for the workshops, most practices we spoke with in Year Three reported continuing to refer patients to the programs.

Care coordination provided by CHTs seemed to have the greatest impact on improving patient experience with care. CHTs referred patients to Healthier Living Workshops and tobacco cessation programs, followed up and encouraged patients to schedule preventive care appointments, coordinated patient care between primary care practices and other providers or facilities, and followed up with patients after discharge from the ER. In Year One, providers reported anecdotally that patients enjoyed working with CHTs, and they saw improvements in the health of patients who could have become lost in the health care system. Care managers found problems early and provided needed solutions to avoid potentially negative situations. CHT staff also provided patients with tools and taught them skills to help better self-manage their health conditions and engage in healthy behaviors, such as establishing goals and teaching healthy eating habits. Practices appreciated having these resources available for their patients and agreed that the education provided by CHTs was helping with patient self-management.

In Year Three, CHTs and practices increasingly used panel management to identify targeted groups of patients for whom to provide care. CHTs and practices used the five high-risk categories in the more stringent 2014 NCQA standards as the basis for targeting high-risk patients and reached out to those patients to create care plans. Anecdotal evidence reported by a practice suggested that patients who agreed to the care plans had very positive outcomes. The provider survey found that Blueprint for Health practices were engaged in efforts to support patients' self-management goals at rates comparable to the average of providers in the eight MAPCP Demonstration states. Seventy percent of providers surveyed said that care plans were developed collaboratively with patients and families, recorded in patient medical records, included self-management and clinical goals, were used to guide ongoing care, and were given to the patient and family to support their care. This is consistent with our interview findings,

especially in Year Three, when there was an increased focus on patient self-management. Only 53 percent of providers surveyed, however, reported that patient self-management support for chronic conditions was provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies; ongoing support was available through individualized care or group interventions, which somewhat contradicts what we heard during our interviews in Year Three.

Over the course of the demonstration, SASH coordinators and wellness nurses played an increasingly critical role in terms of patient engagement and self-management for SASH participants. They actively taught self-management by talking with participants about nutrition, managing high blood pressure and diabetes care, and encouraging participation in smoking cessation classes. SASH program staff also were trained in leading evidence-based programs, such as chronic disease self-management and arthritis care.

Shared decision-making training provided by Health Dialog (a population health services contractor) commenced in May 2012 to teach CHT and practice staff how to involve patients, family members, and caregivers in participating more effectively in decisions concerning their health care. The roll-out was not widespread, possibly because participation in the training was not required. Motivational interviewing training was also provided for CHT and practice staff. In Year Two, shared decision-making and motivational interviewing training continued, though some practice staff either were not clear about what exactly shared decision-making was or were not convinced that it was a useful strategy. Regardless, practice staff felt they were moving in the right direction of increased patient engagement and self-management, which they believed led to increased patient satisfaction and improved outcomes.

6.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of the Blueprint for Health. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. It should be noted that beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

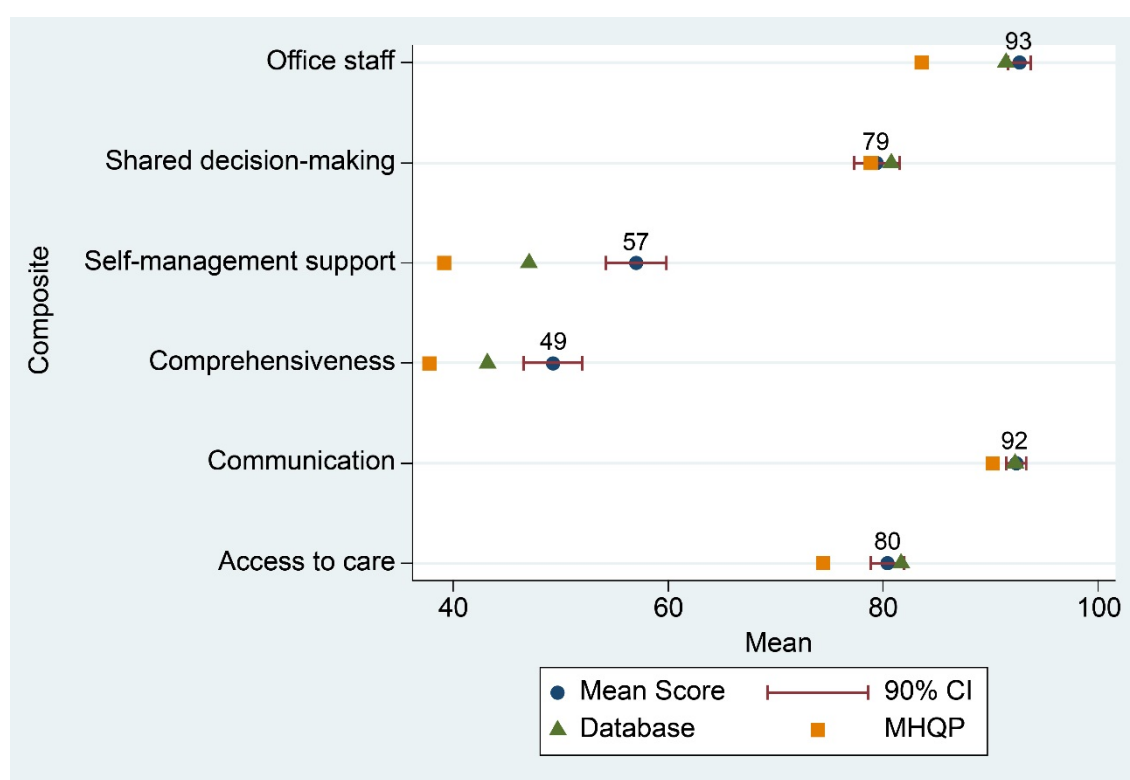
Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner
- *Self-management support.* Two yes/no questions about goal setting and barriers to care

- *Shared decision-making.* Three items regarding medication use
- *Office staff.* Two items about interactions with medical practice office staff
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 6-2** contains the composite scales of Vermont and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.⁸ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

Figure 6-2
Vermont's CAHPS PCMH survey composite measures compared to two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

Vermont scored significantly higher than either standard for both self-management and comprehensiveness. The state also achieved a comparatively high score on office staff

⁸ The CAHPS Database was compiled by Westat and is a repository for health care plans interested in developing benchmarks for their programs. The Database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study were the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

interactions. Vermont's access and shared decision-making composite scores were in between the two standards, and the communication composite score was slightly higher than both standards.

Communication. Blueprint for Health beneficiaries were highly pleased with their communication with their practices. On the basis of Medicare FFS beneficiaries' responses to our survey, Blueprint for Health practices earned an adjusted score of 92 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (*Figure 6-2*). This high composite is corroborated by the focus groups findings and reflects that:

- 97 percent of respondents felt that their providers usually or always knew the important information from their medical history;
- 97 percent believed that their providers usually or always listened carefully to them;
- 98 percent felt that their providers usually or always showed respect for what they had to say;
- 98 percent said that their providers usually or always explained things in a way that was easy to understand;
- 97 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns; and
- 97 percent felt that their providers usually or always spent enough time with them.

Another related survey question revealed that 85 percent of Medicare FFS respondents said they spoke with someone from their provider's practice at each visit about all of the prescription medicines they were taking.

Our focus groups, which included Medicare FFS beneficiaries and their caregivers as well as Medicaid beneficiaries, yielded similarly positive findings—although a few participants offered some contrary views. Below, we present focus group findings on the degree to which beneficiaries felt their provider understands them and communicates effectively.

Provider understands them. Nearly all focus group participants were pleased with their PCPs and felt that their providers knew them as a person and were knowledgeable about their medical history. One participant described the relationship “as being treated like a grown-up.” Two others said they are on a first-name basis with their provider. Another participant said he loves his provider “just like a brother.” A few participants noted that they felt the EHRs contributed to their provider's ability to remember specifics about their medical history and appreciated not having to recap it each time. Most focus group participants said their providers took into account their unique views and approaches to medicine. One participant explained how she did not want to take a certain prescription, so her provider did not pressure her to take it because she knew it was creating stress for the participant.

Effectiveness of communication. Almost all focus group participants felt they had effective communication with their provider. Participants mentioned that providers were “good at explaining” and were “attentive.” Many people said that they felt their provider really listened to their concerns, and they felt they could talk about anything with them. They also said their providers spoke in terms they could understand, and, if they did not understand something, they were comfortable asking for clarification. Three participants in the dually eligible beneficiary group, however, commented that their provider was “there for a paycheck,” “there’s no heart in most of them anymore,” and “you are a number, and that’s it.” A couple of caregivers expressed frustration because the provider spoke to the patient, who they had indicated was unable to hear or make decisions, rather than to the caregiver. Many participants noticed that appointments were shorter than they used to be, but most felt they were getting the time they needed with their provider.

With respect to patient follow-up, some participants mentioned that their provider or a nurse called to check on them after a hospital discharge or procedure. Participants were generally happy with how they received their test results, by phone, mail, on the patient portal, or during their next office visit. Only a small number of participants said they did not get their results at all, and some only got a call or letter saying everything was okay but did not actually get the test result numbers, which they wanted. Participants also mentioned getting paper after-visit summaries explaining what was discussed during the visit and instructions, which they liked. A couple of participants mentioned not wanting the paper summary for fear they would lose it and have their identity stolen because of all the personal information it contained. Participants expressed praise for the ease and responsiveness with which their providers answered questions. Many found the patient portal a good tool to ask their provider a question. A couple of participants mentioned that their provider responds to questions the same day or at least within 24 hours.

Access to care. On the basis of Medicare FFS beneficiaries’ responses to the CAHPS PCMH survey, Blueprint for Health practices earned a weighted score of 80 out of 100 on a multiquestion composite scale that measures how easily patients can access their primary care practices (*Figure 6-2*). Further discussion of beneficiary experience with access to care can be found in *Section 6.4*.

Care coordination. In the Blueprint for Health, care coordination often was linked with access to care, as care managers often coordinated the access of patients to other medical and nonmedical services. *Section 6.4* contains findings from focus group discussions of their experiences with care managers, coordination observed between their primary care practices and local hospitals, and coordination observed with specialists.

Self-management support. On the basis of Medicare FFS beneficiaries’ responses to the CAHPS PCMH survey, Vermont Blueprint for Health practices earned a weighted score of 57 out of 100 on a multiquestion composite scale that assesses the degree to which practices offered patients self-management support (*Figure 6-2*). This composite reflects that:

- 67 percent of respondents had practice staff who talked to them about specific health goals; and

- 47 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

Many focus group participants said their providers talked to them about things they could do to improve and manage their health more effectively. Some of these things included reminding them of tests and procedures, such as regular colonoscopies, skin checks, and flu vaccine shots, encouraging patients to go for regular physicals, and recommending classes to manage chronic conditions. A few participants noticed that providers “start at a different place” by asking “What’s been troubling you?” or “What would you like to work on this time?” Many participants said they discussed goals with their providers, such as losing weight, eating healthier, exercising more, when to start and stop taking a medication, improving lab numbers such as A1C and blood pressure, and stopping smoking. Most of the goals were discussed verbally rather than being documented in written plans. Several participants mentioned being referred to a dietitian or nutritionist for help with eating healthier and losing weight, though this was met with mixed reviews. A few participants mentioned that it was difficult to eat healthy on a limited income, so they did not find the information helpful. A small number of participants took part in Healthier Living Workshops on nutrition, exercise, diabetes, smoking cessation, and falls prevention, with which they were generally happy. Less than a handful of participants had participated in the Wellness Recovery Action Plan program, but those who did found it useful. In both caregiver groups, almost everyone mentioned that doctors did not do anything to help them take better care of their loved ones, which caused some frustration.

Shared decision-making. Vermont Blueprint for Health practices earned a score of 79 out of 100 on a composite that assesses the degree to which practices engage in shared decision-making with patients (*Figure 6-2*). This composite reflects that:

- 91 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication;
- 81 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication; and
- 84 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Most focus group participants felt their relationship with their doctor was a partnership. They felt their provider listened to their concerns and involved them in decisions regarding managing their chronic conditions and overall health. Participants commented that “it’s sort of a mutual thing” and that “he’s open to most anything.” Only a few participants noted that they felt they were told what to do by their providers, and most of this stemmed from discussions about being told to take certain medications.

Office staff. Vermont Blueprint for Health practices earned a score of 93 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks in a respondent’s practice (*Figure 6-2*). When asked to give a global rating of their provider, 92 percent of Vermont Medicare FFS beneficiaries gave their provider a rating of 8 out

of 10 or higher. More than half (58%) gave their provider the highest possible rating—a 10 out of 10.

Consistent with the survey results, most focus group participants were happy with the quality of the nurses and office staff in their practices, describing them as “very friendly,” “efficient,” and the “ones who sort out a lot of the problems.” Other participants commented that the front desk staff “know everything inside and out.” Still others mentioned staff changes: “It seems like they keep changing the people—the secretaries and everything.” Many people felt their providers were overworked.

Additional topics covered in the focus groups. The focus groups covered several additional topics, including participants’ perceptions of their providers’ medical expertise, their team-based approach to care, ER use, and activities implemented by practices to seek patient feedback.

Medical expertise. For the most part, focus group participants highly valued their providers’ medical knowledge and commitment to resolving their medical issues. Participants commented that their providers were “thorough,” “up-to-date,” “smart,” and provided good follow-up. A couple of participants noted some negative incidents with their providers, however.

ER Use. About 40 percent of participants had been to the ER at least once in the last year. Most noted that they tried to avoid going to the ER because of the long wait times. Most participants said that they called their provider’s office first to speak with a doctor, or the doctor on-call if it was after hours or on the weekends, to determine if they should go to the office or go to the ER. When an ER visit was deemed appropriate by the provider, some providers called ahead so that the ER was expecting the patient. Several participants noted using a walk-in clinic or urgent care on the weekend when their primary care practice was closed. Only a small number of participants mentioned having conversations with their providers about when it was appropriate to use the ER and alternative options (e.g., urgent care).

Patient feedback. About one-third of the focus group participants mentioned getting questionnaires mailed to them from their primary care practice or hospital asking for feedback on their recent visit. A couple of participants mentioned receiving an e-mail asking for feedback on their recent visit.

6.5.3 Discussion of Beneficiary Experience with Care

Increasing beneficiary satisfaction with care was an important aim of the Blueprint for Health from the beginning. CHTs and the services they provided were the most visible and most beneficial, according to interviewees at our site visits. Our focus groups revealed, however, that almost no participants had heard of CHTs specifically, though a small number mentioned working with a care manager or case manager from such other organizations as VNAs. Successful integration of CHTs into practices and their focus on a minority of patients who particularly need CHT services likely explain why CHTs were not known by more focus group participants.

Teaching patient self-management skills was a main focus of practices and CHTs, especially in Year Three. Practices and CHTs all reported making referrals to the Healthier

Living Workshops, though only a small number of focus group participants reported taking part in them. Results from the CAHPS PCMH survey and focus groups show that patients are generally pleased with the support they receive from their providers in terms of engaging them in their care. The provider survey revealed, however, that providing self-management support for chronic conditions through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies was one PCMH activity that the fewest providers reported engaging in. Although practices reported only minimal efforts at shared decision-making, our findings from the CAHPS PCMH survey and focus groups indicated that patients generally felt they had a good partnership with their providers when it came to making health care decisions. On the basis of these findings, although practices and providers seem to have provided an overall positive experience of care for their patients through the relationships they developed, there could be room to improve patients' experiences by educating them about the services and supports available to them through the practices, CHTs, and community partners.

6.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Vermont expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees' views on the likelihood of these savings materializing (*Section 6.6.1*); impacts on service utilization and expenditures (*Sections 6.6.2 and 6.6.3*); calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 6.6.4*); and a synthesis of these findings (*Section 6.6.5*).

6.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

Care management was a key component of the Blueprint for Health's efforts to affect utilization and expenditures. Most interviewees viewed this component of the demonstration as being successful. With the help of CHTs, practices tracked ER usage and readmission rates more closely and strengthened their transitions of care support. CHTs played an important role in efforts to reduce hospital-based services by following up with recently discharged patients to avoid readmission. SASH also was mentioned during interviews as a contributor to the effectiveness of the Blueprint for Health with Medicare consumers. The SASH program combined care coordination and chronic disease management services in a congregate housing setting. Vermont believed that, in this more intimate and personalized environment, patients' health would improve as a result of constant communication with health professionals and continuous in-home monitoring by SASH staff.

Vermont had many health initiatives operating concurrently. Interviewers were concerned that these additional programs would act as confounding factors in the MAPCP Demonstration evaluation. One state official commented on the evaluation saying, "As we talk about evaluating our efforts on payment reform, isolating the true effects of the Blueprint may be impossible. We might just do an overarching statewide analysis compared to other places, rather than a discreet intervention looking for an impact." However, our use of out-of-state CGs in this evaluation of the Blueprint for Health reduces concern for the identified methodological issue.

6.6.2 Impacts on Utilization and Expenditures

Blueprint for Health was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between Blueprint for Health and two CGs: PCMHs and non-PCMHs.

- **Table 6-13** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.
- **Table 6-14** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to CGs. A *negative* value corresponds to *lower growth* in expenditures compared to the CG, whereas a *positive* value corresponds to *greater growth* in expenditures compared to the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables. Not all services identified in the Medicare claims could be readily identified in the Medicaid claims, so we limited the analysis of Medicaid expenditures to total Medicaid, acute-care, ER, and prescription drug expenditures. The validity of Vermont's reporting of provider specialty in the Medicaid claims data was in question, so primary care and specialty expenditures were not reported. Because Vermont and New York (the CG for Vermont's Medicaid analysis) operationalize long-term care expenditures differently, a comparison between groups was not feasible.

- **Table 6-15** reports on changes in *all-cause admissions and all-cause ER visits* among Medicare beneficiaries.
- **Table 6-16** reports on changes in *all-cause admissions and all-cause ER visits* among Medicaid beneficiaries.

For Medicare, estimates in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with Blueprint for Health in Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, and a *positive* value corresponds to an *increase* in the rate of events compared to the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 14 quarters of Medicare and Medicaid data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures included all 14 quarters of data. In addition, we noted statistically significant *overall* findings following each results table; we also noted when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 6.6.5**.

Table 6-13
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 50,276)	-25.93	[-54.75, 2.88]	-27.27*	[-53.16, -1.39]
Year Two (N = 62,339)	-24.27	[-65.21, 16.67]	-35.48*	[-59.72, -11.24]
Year Three (N = 70,149)	-44.38*	[-83.12, -5.63]	-10.96	[-37.22, 15.30]
Overall (N = 84,151)	-36.06*	[-62.54, -9.59]	-27.07*	[-46.48, -7.66]
Overall Aggregate	-\$82,271,080*		-\$61,754,919*	
Acute care				
Year One (N = 50,276)	-1.14	[-17.93, 15.64]	-6.55	[-25.90, 12.80]
Year Two (N = 62,339)	-10.00	[-26.73, 6.73]	-3.89	[-18.44, 10.66]
Year Three (N = 70,149)	-10.33	[-23.41, 2.75]	-2.62	[-16.73, 11.49]
Overall (N = 84,151)	-9.40	[-22.93, 4.14]	-6.08	[-17.53, 5.36]
Overall Aggregate	-\$21,433,292		-\$13,878,107	
Post-acute-care				
Year One (N = 50,276)	-19.05*	[-28.00, -10.11]	-16.04*	[-25.12, -6.95]
Year Two (N = 62,339)	-12.44*	[-24.27, -0.61]	-19.09*	[-29.63, -8.55]
Year Three (N = 70,149)	-18.26*	[-33.44, -3.08]	-6.70	[-16.70, 3.30]
Overall (N = 84,151)	-14.66*	[-26.20, -3.11]	-14.53*	[-24.07, -4.99]
Overall Aggregate	-\$33,441,231*		-\$33,145,388*	
ER visits not leading to hospitalization				
Year One (N = 50,276)	1.74	[-1.72, 5.21]	-1.74	[-4.09, 0.61]
Year Two (N = 62,339)	2.50	[-1.71, 6.70]	-4.15*	[-7.07, -1.22]
Year Three (N = 70,149)	0.59	[-3.64, 4.82]	-2.33	[-5.71, 1.06]
Overall (N = 84,151)	0.79	[-3.16, 4.75]	-3.00*	[-5.68, -0.31]
Overall Aggregate	\$1,811,059		-\$6,834,381*	

(continued)

Table 6-13 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures
among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Outpatient				
Year One (N = 50,276)	13.13*	[4.97, 21.29]	4.83	[-3.77, 13.43]
Year Two (N = 62,339)	11.67*	[3.52, 19.82]	2.91	[-4.27, 10.08]
Year Three (N = 70,149)	4.64	[-4.08, 13.36]	2.15	[-6.16, 10.46]
Overall (N = 84,151)	8.00*	[1.00, 15.00]	2.43	[-4.23, 9.09]
Overall Aggregate	\$18,250,275*		\$5,547,193	
Specialty physician				
Year One (N = 50,276)	-5.41*	[-7.99, -2.84]	-3.34*	[-5.78, -0.89]
Year Two (N = 62,339)	-6.09*	[-10.32, -1.85]	-3.77*	[-6.31, -1.23]
Year Three (N = 70,149)	-10.26*	[-15.98, -4.55]	-4.89*	[-7.01, -2.76]
Overall (N = 84,151)	-8.23*	[-12.44, -4.01]	-4.42*	[-6.21, -2.62]
Overall Aggregate	-\$18,770,641*		-\$10,074,393*	
Primary care physician				
Year One (N = 50,276)	-3.79*	[-6.93, -0.66]	-2.67*	[-4.59, -0.75]
Year Two (N = 62,339)	-1.77	[-6.07, 2.54]	-2.57*	[-4.79, -0.35]
Year Three (N = 70,149)	-2.74	[-6.21, 0.73]	-1.40	[-3.80, 1.01]
Overall (N = 84,151)	-2.43	[-5.93, 1.07]	-2.05	[-4.28, 0.19]
Overall Aggregate	-\$5,544,979		-\$4,667,945	
Home health				
Year One (N = 50,276)	-4.46	[-9.80, 0.89]	3.04*	[0.13, 5.95]
Year Two (N = 62,339)	-3.41	[-9.94, 3.12]	1.93	[-1.14, 4.99]
Year Three (N = 70,149)	-5.29	[-11.04, 0.47]	3.92*	[0.63, 7.21]
Overall (N = 84,151)	-5.51*	[-10.82, -0.20]	2.91*	[0.13, 5.70]
Overall Aggregate	-\$12,569,525*		\$6,644,206*	
Other non-facility				
Year One (N = 50,276)	-1.24*	[-2.33, -0.15]	-0.10	[-1.42, 1.23]
Year Two (N = 62,339)	0.14	[-1.10, 1.38]	-0.12	[-1.42, 1.19]
Year Three (N = 70,149)	-1.01	[-2.15, 0.13]	0.50	[-0.81, 1.80]
Overall (N = 84,151)	-0.90	[-1.81, 0.01]	0.10	[-0.94, 1.13]
Overall Aggregate	-\$2,056,130		\$224,903	
Laboratory				
Year One (N = 50,276)	-1.13*	[-1.64, -0.63]	-1.36*	[-2.06, -0.66]
Year Two (N = 62,339)	-0.47	[-0.96, 0.01]	-1.35*	[-2.24, -0.45]
Year Three (N = 70,149)	-0.38	[-1.23, 0.47]	-1.53*	[-2.53, -0.53]
Overall (N = 84,151)	-0.67*	[-1.15, -0.19]	-1.49*	[-2.33, -0.65]
Overall Aggregate	-\$1,524,783*		-\$3,393,019*	

(continued)

Table 6-13 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures
among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Imaging				
Year One (N = 50,276)	-2.09*	[-2.80, -1.39]	-1.29*	[-1.75, -0.83]
Year Two (N = 62,339)	-0.87	[-2.28, 0.53]	-1.05*	[-1.47, -0.63]
Year Three (N = 70,149)	-1.20*	[-2.15, -0.25]	-0.93*	[-1.47, -0.39]
Overall (N = 84,151)	-1.26*	[-2.20, -0.32]	-1.12*	[-1.56, -0.68]
Overall Aggregate	-\$2,870,346*		-\$2,546,035*	
Other facility				
Year One (N = 50,276)	0.06	[-0.03, 0.16]	0.11	[-0.05, 0.28]
Year Two (N = 62,339)	-0.20	[-0.42, 0.02]	-0.20*	[-0.39, -0.01]
Year Three (N = 70,149)	-0.01	[-0.06, 0.05]	0.02	[-0.09, 0.14]
Overall (N = 84,151)	-0.02	[-0.10, 0.06]	0.00	[-0.09, 0.09]
Overall Aggregate	-\$54,598		\$816	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that Blueprint for Health slowed the growth in total Medicare expenditures. This change appears to be a result of decreases in post-acute-care expenditures, specialty physician expenditures, and home health expenditures. Specifically, **Table 6-13** shows that:

- The growth in *overall aggregate total Medicare expenditures* was \$82.3 million lower for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.

- The growth in *overall aggregate* **total Medicare expenditures** was \$61.8 million lower for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **post-acute-care expenditures** was \$33.4 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$33.1 million lower compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **specialty physician expenditures** was \$18.8 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$10.1 million lower compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **laboratory expenditures** was \$1.5 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$3.4 million lower compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **imaging expenditures** was \$2.9 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$2.5 million lower compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **expenditures for ER visits not leading to hospitalization** was \$6.8 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **outpatient expenditures** was \$18.3 million greater for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **home health expenditures** was \$12.6 million lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices, but the growth in *overall aggregate* **home health expenditures** was \$6.6 million greater for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for primary care physician expenditures, other non-facility expenditures, or other facility expenditures.

Table 6-14
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid										
Year One	31,537	42.28*	[23.76, 60.79]	20.82*	[0.60, 41.04]	32,965	31.19*	[3.71, 58.67]	18.43	[-13.56, 50.42]
Year Two	52,673	56.78*	[41.07, 72.49]	42.49*	[24.83, 60.15]	40,521	63.04*	[39.54, 86.54]	48.27*	[25.93, 70.62]
Year Three	55,623	53.09*	[34.88, 71.30]	49.72*	[31.31, 68.12]	45,521	58.79*	[40.94, 76.64]	46.07*	[19.05, 73.09]
Overall	65,829	41.61*	[26.57, 56.65]	35.56*	[19.32, 51.81]	61,490	32.65*	[12.22, 53.08]	19.03	[-4.81, 42.87]
Overall Aggregate		\$66,699,397*		\$57,006,255*			\$40,462,433*		\$23,582,332	
Acute care										
Year One	31,537	13.02*	[6.52, 19.53]	13.30*	[9.14, 17.45]	32,965	6.39*	[2.25, 10.53]	7.19*	[1.19, 13.19]
Year Two	52,673	14.22*	[6.57, 21.88]	16.70*	[11.90, 21.50]	40,521	11.00*	[7.25, 14.76]	12.18*	[6.97, 17.38]
Year Three	55,623	1.20	[-6.50, 8.91]	8.25*	[3.81, 12.68]	45,521	3.56	[-1.34, 8.45]	8.09*	[0.98, 15.21]
Overall	65,829	7.44*	[0.62, 14.26]	12.26*	[8.06, 16.46]	61,490	3.32*	[0.04, 6.60]	5.72*	[0.88, 10.56]
Overall Aggregate		\$11,927,547*		\$19,654,267*			\$4,113,151*		\$7,087,924*	
ER visits not leading to hospitalization										
Year One	31,537	-1.40	[-4.18, 1.38]	0.81	[-0.46, 2.09]	32,965	2.97*	[1.11, 4.84]	1.96	[-0.06, 3.97]
Year Two	52,673	-1.60	[-3.73, 0.54]	2.16*	[1.08, 3.23]	40,521	1.79	[-0.03, 3.61]	2.91*	[1.26, 4.57]
Year Three	55,623	-0.55	[-2.48, 1.38]	1.67*	[0.33, 3.02]	45,521	2.99*	[1.13, 4.85]	2.99*	[1.52, 4.47]
Overall	65,829	-1.59	[-3.40, 0.22]	1.47*	[0.34, 2.61]	61,490	1.46	[-0.24, 3.16]	1.42*	[0.07, 2.76]
Overall Aggregate		-\$2,547,583		\$2,361,280*			\$1,811,288		\$1,755,866*	

(continued)

Table 6-14 (continued)

**Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration**

Type of expenditure	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Prescription drugs										
Year One	31,537	1.91	[-3.03, 6.85]	-1.30	[-4.90, 2.29]	32,965	16.38*	[7.75, 25.01]	9.59	[-0.57, 19.76]
Year Two	52,673	7.75*	[4.07, 11.44]	3.89*	[0.76, 7.03]	40,521	27.11*	[18.94, 35.28]	17.26*	[8.80, 25.73]
Year Three	55,623	14.82*	[10.86, 18.77]	10.44*	[6.69, 14.19]	45,521	37.82*	[28.96, 46.68]	25.13*	[16.59, 33.68]
Overall	65,829	9.35*	[6.24, 12.45]	6.89*	[3.86, 9.92]	61,490	27.98*	[19.83, 36.13]	16.63*	[8.54, 24.72]
Overall Aggregate		\$14,981,664*		\$11,046,580*			\$34,675,707*		\$20,605,981*	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- The validity of Vermont's reporting of provider specialty in the claims data was in question, so primary care and specialty expenditures were not reported.
- Because Vermont and New York (the CG for Vermont) operationalize long-term care expenditures differently, a comparison between groups was not feasible.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children, we found no evidence that Blueprint for Health decreased the growth in total Medicaid expenditures. In fact, the evidence indicates an increase in total Medicaid expenditures among children that resulted from increases in acute-care expenditures and prescription drug expenditures. Among Medicaid adults, we found evidence that Blueprint for Health changed the growth in expenditures, although there were inconsistencies in the statistical significance across CGs. Specifically, *Table 6-14* shows the following:

- Among children, the growth in *overall aggregate total Medicaid expenditures* was \$66.7 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$57 million greater compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid children, the growth in *overall aggregate acute-care expenditures* was \$11.9 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$19.7 million greater compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid children, the growth in *overall aggregate prescription drugs expenditures* was \$15 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$11 million greater compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid children, the growth in *overall aggregate expenditures for ER visits not leading to hospitalization* was \$2.4 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- Among adults, the growth in *overall aggregate total Medicaid expenditures* was \$40.5 million greater for Medicaid beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.
- Among adults, a positive estimate in Years Two and Three suggested a potential trend toward greater growth in **total Medicaid expenditures** among Medicaid beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices, although the *overall* estimate was not statistically significant.
- Among Medicaid adults, the growth in *overall aggregate acute-care expenditures* was \$4.1 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$7.1 million greater compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults, the growth in *overall aggregate prescription drugs expenditures* was \$34.7 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and \$20.6 million greater compared to beneficiaries assigned to non-PCMH practices.

- Among Medicaid adults, the growth in *overall aggregate expenditures for ER visits not leading to hospitalization* was \$1.8 million greater for beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.

Table 6-15
Vermont: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 50,276)	0.19	[-5.18, 5.56]	2.80*	[0.45, 5.15]
Year Two (N = 62,339)	1.43	[-5.23, 8.10]	1.99	[-0.27, 4.25]
Year Three (N = 70,149)	-0.65	[-6.39, 5.10]	1.14	[-2.30, 4.57]
Overall (N = 84,151)	-0.58	[-5.51, 4.35]	1.15	[-1.24, 3.54]
Overall Aggregate	-441		877	
ER visits not leading to hospitalization				
Year One (N = 50,276)	18.15*	[6.81, 29.49]	14.10*	[5.55, 22.66]
Year Two (N = 62,339)	18.13*	[6.67, 29.59]	7.33	[-1.02, 15.67]
Year Three (N = 70,149)	14.02*	[3.82, 24.21]	12.89*	[6.28, 19.51]
Overall (N = 84,151)	14.65*	[4.41, 24.90]	10.64*	[3.93, 17.35]
Overall Aggregate	11,144*		8,093*	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found little evidence that the Blueprint for Health practices changed all-cause admissions; however, it did change the utilization of ER visits not leading to hospitalizations. Specifically, **Table 6-15** shows the following:

- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 11,144 among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 8,093 among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries for all-cause admissions.

Table 6-16
Vermont: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions										
Year One	31,537	0.11	[-0.01, 0.22]	0.10*	[0.01, 0.18]	32,965	0.25*	[0.06, 0.44]	0.32*	[0.07, 0.56]
Year Two	52,673	0.10	[-0.01, 0.21]	0.11*	[0.03, 0.19]	40,521	0.67*	[0.35, 1.00]	0.76*	[0.48, 1.05]
Year Three	55,623	-0.02	[-0.12, 0.09]	0.04	[-0.02, 0.10]	45,521	0.31*	[0.06, 0.55]	0.46*	[0.22, 0.71]
Overall	65,829	0.03	[-0.06, 0.12]	0.06*	[0.00, 0.12]	61,490	0.27*	[0.10, 0.45]	0.37*	[0.19, 0.56]
Overall Aggregate		177		321*			1,117*		1,541*	
ER visits not leading to hospitalization										
Year One	31,537	0.52	[-0.38, 1.42]	0.78	[-0.01, 1.58]	32,965	1.17	[-0.03, 2.37]	0.64	[-0.32, 1.61]
Year Two	52,673	0.91	[-0.04, 1.87]	1.53*	[0.69, 2.37]	40,521	0.89	[-0.34, 2.11]	1.70*	[0.93, 2.47]
Year Three	55,623	1.04*	[0.15, 1.94]	1.30*	[0.56, 2.03]	45,521	1.16	[-0.16, 2.48]	1.76*	[0.99, 2.53]
Overall	65,829	0.35	[-0.31, 1.00]	0.99*	[0.35, 1.63]	61,490	0.54	[-0.67, 1.75]	0.85*	[0.11, 1.58]
Overall Aggregate		1,846		5,304*			2,231		3,495*	
Low birth weight admissions										
Overall	53	-5.00	[-10.60, 0.61]	-9.57	[-19.61, 0.48]	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		-2		-3			N/A		N/A	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *negative* value corresponds to a *decrease* in the likelihood of events. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found evidence that Blueprint for Health practices changed the utilization of only all-cause admissions and ER visits not leading to hospitalization. Specifically, **Table 6-16** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 321 among Medicaid child beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 1,117 among Medicaid adult beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and by 1,541 compared to beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 5,304 among Medicaid child beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 3,495 among Medicaid adult beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries for low birth weight.

6.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories analyzed across all eight MAPCP Demonstration states, we also analyzed categories that Vermont specifically expected to be affected by the demonstration, as noted in its demonstration application. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 6-17** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between beneficiaries assigned to Blueprint for Health practices and two CGs: PCMHs and non-PCMHs. **Table 6-17** contains measures of expenditures for inpatient physicians, outpatient physicians, outpatient ER, and outpatient mental health, as well as specific categories of utilization expected to be affected by the demonstration, such as hospital-based care for ambulatory care sensitive conditions (ACSC), hospitalizations for short-term medical conditions (e.g., respiratory system, circulatory system), and other services. Details on these measures can be found in **Appendix D**. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data. A *negative* value corresponds to *lower growth* in expenditures compared to CGs, and a *positive* value corresponds to *greater growth* compared to CGs. Utilization estimates in this table are interpreted as the difference in the rate of utilization associated with the MAPCP Demonstration per 1,000 beneficiary quarters. A *negative* value corresponds to a *decrease* in the rate of events

compared to CGs. A *positive* value corresponds to an *increase* in the rate of events compared to CGs. Estimates are presented overall for all quarters of the demonstration.

Table 6-17
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Inpatient physician expenditures Overall (N = 84,151)	-4.02*	[-5.64, -2.40]	-2.14*	[-3.39, -0.88]
Outpatient physician expenditures Overall (N = 84,151)	-0.17	[-4.55, 4.20]	2.81*	[1.14, 4.49]
Outpatient ER expenditures Overall (N = 84,151)	0.67	[-3.08, 4.43]	-2.31	[-4.84, 0.22]
Outpatient mental health expenditures Overall (N = 84,151)	-8.29	[-22.36, 5.79]	-0.80	[-12.02, 10.43]
Hospital-based care for ACSC Overall (N = 84,151)	3.50*	[0.81, 6.20]	3.63*	[2.08, 5.19]
Psychiatric hospital Overall (N = 84,151)	0.03	[-0.11, 0.17]	0.01	[-0.11, 0.12]
Respiratory system Overall (N = 84,151)	0.67	[-0.15, 1.49]	1.05*	[0.12, 1.97]
Circulatory system Overall (N = 84,151)	-0.37	[-1.96, 1.22]	-0.28	[-0.89, 0.33]
Digestive system Overall (N = 84,151)	-0.82*	[-1.61, -0.02]	0.13	[-0.36, 0.62]
Musculoskeletal Overall (N = 84,151)	-0.88*	[-1.53, -0.22]	-0.52	[-1.14, 0.10]
Skin Overall (N = 84,151)	0.17	[-0.08, 0.42]	-0.10	[-0.32, 0.12]
Endocrine Overall (N = 84,151)	0.04	[-0.22, 0.31]	0.20	[-0.05, 0.44]
Kidney/Urology Overall (N = 84,151)	0.50*	[0.03, 0.97]	0.32	[0.00, 0.64]
Infection Overall (N = 84,151)	0.05	[-0.50, 0.60]	0.15	[-0.19, 0.50]
Mental Overall (N = 84,151)	-0.14	[-0.51, 0.23]	-0.26	[-0.56, 0.03]
Rehabilitation Overall (N = 84,151)	-1.47*	[-2.48, -0.45]	-0.83*	[-1.64, -0.03]
Ambulance services Overall (N = 84,151)	5.88	[-0.13, 11.88]	4.68	[-0.49, 9.86]
Laboratory tests Overall (N = 84,151)	-99.86	[-259.88, 60.16]	-202.50	[-415.98, 10.97]

(continued)

Table 6-17 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Advanced imaging Overall (N = 84,151)	-1.73	[-9.62, 6.17]	-0.65	[-7.86, 6.55]
Nursing home Overall (N = 84,151)	-1.06	[-9.56, 7.45]	6.74	[-1.18, 14.65]
SNFs, long-term care Overall (N = 84,151)	0.12	[-2.90, 3.14]	3.78*	[1.59, 5.97]
Home health Overall (N = 84,151)	-5.60*	[-8.59, -2.60]	1.54	[-2.21, 5.30]
Durable medical equipment Overall (N = 84,151)	4.85	[-15.16, 24.86]	8.48	[-4.79, 21.75]
Hospice Overall (N = 84,151)	-0.95	[-3.86, 1.96]	1.56	[-0.57, 3.70]

NOTES:

- Inpatient and outpatient physician expenditures, outpatient ER expenditures, and outpatient mental health expenditures are PBPM.
- Estimates for the first four outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- All other outcomes are rates per 1,000 beneficiary quarters.
- Estimates for nonexpenditure outcomes in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

ACSC = ambulatory care sensitive conditions; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home; SNF = skilled nursing facility.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that the MAPCP Demonstration changed the growth in their targeted expenditure outcomes or changed the rate of their targeted utilization outcomes, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 6-17** shows the following:

- The *overall* growth in **inpatient physician expenditures** was lower for Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to either PCMH or non-PCMH practices.

- The *overall* estimate indicates that the Blueprint for Health increased the rate of **hospital-based care for ACSC** among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to either PCMH or non-PCMH practices.
- The *overall* estimate indicates that the Blueprint for Health decreased the rate of services for the **digestive system** and **musculoskeletal** conditions among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.
- The *overall* estimate indicates that the Blueprint for Health increased the **rate of services for kidney/urology** conditions among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.
- The *overall* estimate indicates that the Blueprint for Health decreased the **rate of rehabilitation services** among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to either PCMH or non-PCMH practices.
- The *overall* estimate indicates that the Blueprint for Health increased the **rate of skilled nursing facility (SNF) and long-term care services** among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The *overall* estimate indicates that the Blueprint for Health decreased the **rate of home health services** among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for outpatient ER and outpatient mental health expenditures and the following services: psychiatric hospital, circulatory system, skin, endocrine, infection, mental, ambulance, laboratory tests, advanced imaging, nursing home, durable medical equipment, and hospice.

6.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Vermont relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics: gross savings, net savings, and return on fees. *Gross savings* represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, and *net savings* are gross savings minus the fees paid on behalf of Medicare. The *return on fees* equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in *Table 6-13* from *Section 6.6.2*. (See

Appendix C for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from *Table 6-13*. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP Demonstration fees. Positive net savings estimates denote that either there were gross losses or the MAPCP Demonstration fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 6-18 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 14 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 6-18
Vermont: Estimates of gross savings, fees paid, and net savings and return on fees

	Gross Savings	90% Confidence Interval		Fees	Net Savings	90% Confidence Interval		Return on Fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	\$13,085,424	−\$1,451,989	\$27,622,837	\$3,101,483	\$9,983,941	−\$4,553,472	\$24,521,354	4.22
Year Two	\$15,535,319	−\$10,673,099	\$41,743,737	\$5,443,084	\$10,092,235	−\$16,116,183	\$36,300,653	2.85
Year Three	\$32,975,835*	\$4,183,960	\$61,767,710	\$6,398,956	\$26,576,879	−\$2,214,995	\$55,368,754	5.15
Q13–Q14	\$20,674,502*	\$7,930,441	\$33,418,564	\$3,397,404	\$17,277,098*	\$4,533,037	\$30,021,160	6.09
All Years	\$82,271,080*	\$21,870,903	\$142,671,258	\$18,340,927	\$63,930,154*	\$3,529,976	\$124,330,331	4.49
Relative to non-PCMH comparison beneficiaries								
Year One	\$13,759,791*	\$699,194	\$26,820,387	\$3,101,483	\$10,658,308	−\$2,402,289	\$23,718,904	4.44
Year Two	\$22,710,103*	\$7,192,843	\$38,227,362	\$5,443,084	\$17,267,019*	\$1,749,759	\$32,784,278	4.17
Year Three	\$8,144,865	−\$11,366,656	\$27,656,387	\$6,398,956	\$1,745,910	−\$17,765,612	\$21,257,431	1.27
Q13 – Q14	\$17,140,161*	\$2,237,625	\$32,042,696	\$3,397,404	\$13,742,757	−\$1,159,779	\$28,645,292	5.05
All Years	\$61,754,919*	\$17,470,519	\$106,039,320	\$18,340,927	\$43,413,993	−\$870,408	\$87,698,393	3.37

NOTES:

- *Gross savings.* Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- *Net savings.* The estimate of gross savings minus the total Medicare fees paid.
- *Return on fees.* The estimate of gross savings divided by total Medicare fees paid.
- *Fees.* Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.

PBPM = per beneficiary per month; PCMH = patient-centered medical home. SOURCE: Medicare claims 2011:Q3–2014:Q4.

* Statistically significant at the 10 percent level.

In the analysis of budget neutrality relative to the PCMH CG, *Table 6-18* shows the following:

- The MAPCP Demonstration in Vermont resulted in an estimated gross savings of \$82,271,080 for Medicare, with a 90 percent confidence interval that extended from \$21.9 million to \$142.7 million.
- Total fees paid out on the basis of the demonstration were \$18,340,927, which translates into an estimated net savings of \$63,930,154 for Medicare and a return on fees of 4.49. Net savings were also statistically significant, with a confidence interval that extended from \$3.5 million to \$124.3 million.
- Estimates of gross savings were statistically significant in Year Three, and estimates of gross and net savings were also statistically significant in Quarters 13 and 14 of the demonstration.

In the analysis of budget neutrality relative to the non-PCMH CG, *Table 6-18* shows the following:

- The MAPCP Demonstration in Vermont resulted in an estimated gross savings of \$61,754,919 for Medicare, with a 90 percent confidence interval that extended from \$17.5 million to \$106 million.
- Total fees paid out on the basis of the demonstration were \$18,340,927, which translates into an estimated net savings of \$43,413,993 for Medicare. However, because the 90 percent confidence interval contained \$0, the net savings estimate was not statistically significant.
- Estimates of gross and net savings were statistically significant in Year Two of the demonstration. In addition, the estimates of gross savings in Year One and Quarters 13 and 14 was also statistically significant.

6.6.5 Discussion of Effectiveness

Results of analysis in this chapter show that the Blueprint for Health was successful in significantly decreasing expenditures. Among Medicare beneficiaries, the gross savings were between \$61.8 and \$82.3 million during the first 14 quarters of the demonstration (between \$50.6 and \$61.5 million during the first 3 years). Net of the MAPCP Demonstration fees, the savings among Medicare beneficiaries was \$63.9 million compared to PCMH comparison practices and \$43.4 million compared to non-PCMH practices.

Care management was a key aspect of Vermont's Blueprint for Health. Throughout the years of the evaluation, most interviewees noted that CHTs and SASH nurses played a major role in Blueprint for Health efforts to have a favorable impact on utilization and expenditures. CHTs helped practices with their population health management and patients' chronic disease management and added a breadth of services that practices were unable to provide on their own. They targeted high-risk patients based on five high-risk categories in the 2014 NCQA standards.

CHTs also tracked ER usage and readmission rates so they could focus on reducing these services among patients at risk of using them unnecessarily. A state official mentioned hearing consistent praise and appreciation for CHTs, even from larger health care systems.

Although CHTs served well as the face of the demonstration for patients, the results of their efforts were not reflected in the analysis of these outcomes for the overall population of Blueprint for Health patients. During the demonstration, there were significant increases in Medicare ER visits not leading to hospitalizations and no changes in all-cause admission rates relative to both CGs (**Table 6-15**). For child and adult Medicaid beneficiaries, there was an increase in the rate of ER visits not leading to hospitalization relative to non-PCMH comparison practices (**Table 6-16**). Potential explanations for the increase in ER visits include an increase in the number of Vermont urgent care centers, which are licensed and bill as ERs, and PCMHs' potential inability to increase access to the point where they did not have to refer patients to the ERs, possibly due to insufficient incentives or a shortage of primary care physicians. Using either CG, estimates indicate that adult Medicaid beneficiaries experienced an increase in the rate of all-cause hospitalizations during the MAPCP Demonstration. Estimates of changes for the SASH population are discussed in **Section 6.7.2**.

Although our analysis results indicate that total expenditures decreased for Medicare beneficiaries, the total Medicaid expenditures for child and adult beneficiaries actually increased significantly (**Table 6-14**). The same is true for our analysis of Medicaid acute-care expenditures. There are no estimates of significant decreases in expenditure categories for Medicaid beneficiaries. However, it should be noted that when we look at quarterly trends of the running estimates for Medicaid expenditures, we found that the magnitude of some Medicaid expenditure growth categories is decreasing. Thus, it is possible that with a longer analysis period we would also see expenditures decrease for Medicaid Blueprint for Health beneficiaries. For Medicare, areas of expenditure that likely contributed to the savings noted earlier included post-acute-care, specialty physicians, laboratory, and imaging.

As described earlier in this section, Vermont's application detailed the expenditure and utilization categories expected to be affected by the Blueprint for Health. We looked at many of these categories and found evidence that the Blueprint for Health was associated with the intended changes in some categories. As Vermont expected, among Medicare beneficiaries, there were decreases in expenditures on inpatient physicians and outpatient ER visits. There were also decreases in the utilization rate of inpatient care for musculoskeletal conditions and injuries and rehabilitation services. Vermont did not, however, expect the Blueprint for Health to be associated with increases in hospital-based care for ACSCs, inpatient admissions related to the respiratory system and kidney/urology, ambulance services, and SNFs/long-term care. Although the application predicted a 10 percent increase in home-based care services, the estimates indicate that there was a decrease in home health services relative to the PCMH comparison practices.

Although Vermont succeeded with savings in total expenditures among Medicare beneficiaries, the state did not experience reductions in major utilization categories, such as inpatient admissions and ER visits for Medicare or Medicaid beneficiaries. Among Medicare beneficiaries, the overall savings were driven particularly by lower expenditures on post-care and specialty physicians, but also by laboratory services and imaging services.

6.7 Special Populations

This section describes efforts by practices or the overall Blueprint for Health initiative to target special patient populations (according to our interviews) (*Section 6.7.1*); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization (based on claims data) (*Sections 6.7.2*); and a synthesis of these findings (*Section 6.7.3*).

6.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

Vermont identified four subpopulations for special focus within the state:

- Medicaid beneficiaries with one or more chronic conditions, through VCCI
- Individuals (other than Medicaid beneficiaries) with chronic conditions, multiple comorbidities, or at high risk for developing a chronic condition
- Individuals with behavioral health issues, through the Hub and Spoke Initiative
- Medicare beneficiaries in supported housing and the surrounding communities, through the SASH program

VCCI was established to operate as an extension of CHTs, targeting Medicaid beneficiaries with one or more chronic conditions. Through the VCCI initiative, Medicaid care coordinators served as extenders to CHTs, focusing on the more complex, high-cost Medicaid beneficiaries. The Medicaid care coordinators provided intensive case management services, such as care coordination, health coaching, and health education. Based on findings from our focus groups with Medicaid beneficiaries, only three participants were familiar with the program, and only one had seen a VCCI coordinator. Although her experience was very positive, it was short in duration because the coordinator left the position after seeing the participant for only 3 months.

Vermont targeted individuals with chronic conditions, particularly those with hypertension, diabetes, and CHF, because of high health care expenditures. The statewide Healthier Living Workshop program, coordinated by the Blueprint for Health and the Division of Health Promotion and Disease Prevention at the Vermont Department of Health, was designed to assist patients with chronic conditions by providing education on self-management and engagement skills to improve control of their condition(s). See *Section 6.3.1* and *Section 6.5.1* for details on focus group participants' experiences with the workshops. In addition, VCHIP hired two facilitators to work with pediatric practices focusing on children with chronic conditions, such as asthma and diabetes.

People with behavioral health issues were targeted in an effort to coordinate care more effectively, with the aim of increasing the use of mental health services and total outpatient visits and decreasing the rates of hospitalizations and ER visits. CHTs worked with mental health agencies or counselors in the community to coordinate care for identified patients. As described earlier in this chapter, the Hub and Spoke Initiative was implemented in Year Two to address the needs of individuals with behavioral health issues and opioid addictions.

On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, Vermont Blueprint for Health practices earned a weighted score of 49 out of 100 on a multiquestion composite scale that measures the degree to which practices asked about behavioral health issues (*Figure 6-2*). This composite reflects that

- 55 percent of respondents said their practice staff asked if they felt depressed,
- 52 percent reported that practice staff talked to them about things in their lives that worried or stressed them, and
- 36 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

One practice explained that it was not worthwhile to ask patients questions about their mental health status when there were no resources to offer or services to which they could have been referred. This philosophy may explain in part the relatively low percentage of survey respondents who were asked about their mental health. As mentioned previously in *Section 6.2.1*, behavioral health specialists were hired to join CHTs to attempt to fill the gap in these services for practices. Results from the CAHPS PCMH survey, however, indicate that further efforts to address behavioral and mental health issues were needed in Vermont.

Medicare beneficiaries in supported housing, and those residing in surrounding communities, were targeted through the SASH program, which was developed to help elderly residents age safely in place by connecting them with community-based support services and providing greater coordination of health care. SASH teams extended the work of CHTs and PCPs by providing targeted support and services to SASH participants in their homes. The SASH program rolled out in Year One and expanded across the state to every county and HSA in Vermont. As of December 31, 2014, there were 52 panels serving 4,122 participants, including 896 community participants living in nearby single-family homes or apartments, representing approximately 25 percent of participants statewide.

In Years One and Two, the SASH program faced challenges in marketing the program to practices, providers, and other community organizations. By Year Three, however, the program was well known and accepted, mainly because of the large growth in participation and saturation throughout the state. One interviewee commented that SASH went from “knocking on people’s doors” to tell them about the program to people going to SASH. An ongoing challenge that we heard each year was that resources allocated for wellness nurses, 0.25 full-time equivalent per SASH panel, were insufficient to meet the needs of SASH participants, especially those in rural areas, where nurses drove 45 minutes to an hour or more each way to meet with participants. Because the SASH program was not able to increase revenue, one approach SASH administrators considered was to decrease the volume of work for the nurses by reducing the panel size from 100 to 70 participants in rural areas and 80 participants in other areas. This would have allowed the nurses to provide more focused care and services for a smaller pool of SASH participants.

Although Medicare increased PBPM payments each year, some SASH staff noted that the program’s global operating budget, to which all payers contributed, was insufficient to cover

certain costs, such as mileage and administrative overhead. In addition, there was no opportunity to provide raises to staff, so some experienced SASH coordinators were forced to leave and take other jobs with higher pay. With the 2 percent federal sequestration, the SASH program actually saw a reduction in payments for the same work. In terms of the future, the SASH program is making improvements to the model so that they are positioned to seek permanent funding from alternate sources in January 2017 when MAPCP Demonstration funding ends.

To better understand patients' perspectives on their experiences with the SASH program, we conducted targeted focus groups with SASH participants. It is important to note regional differences between the two SASH groups in Burlington and Rutland. In the Burlington group, only four of the eight participants had actually used services through SASH, which included the blood pressure clinics conducted by the wellness nurses. In general, there was confusion about the purpose of SASH. Participants commented: "I just don't know what they're really for," "It's very vague," and "It's hard to identify exactly what they do." Another said, "I think SASH is just a referral service. You tell them such and such, and they refer you to someone else or refer you back to your doctor. You can do that on your own. What use is that?"

There was a lot of discussion about the wellness nurses in the Burlington focus group. A couple of participants did not understand their purpose and what services they could provide. One participant mentioned that the student nurses who visited to take blood pressure readings were a lot more helpful and answered questions and were very supportive: "The SASH nurse doesn't do anything." Another mentioned that every time she went to see the nurse, she ended up being sent to her PCP. They told her: "Well, we can't—we don't know what this is, so you best go to your family physician." Two other participants explained how they got inaccurate blood pressure readings taken by the nurse, so they did not use the nurse again for their blood pressure readings. Another mentioned, "If its purpose is to keep you able to sustain yourself in your own home, I think you'd have a hard time getting by with whatever services they provide." Still another participant felt that SASH was too focused on getting more people to sign up and that they could not adequately take care of their current participants.

However, there was some positive feedback on SASH in the Burlington focus group. One participant mentioned that "They [SASH] do a lot of good helping other people with other problems." Another participant said, "I'm glad they're there because, from my point of view, they seem to be an advocate for me. If I have some minor concern, I know it'll be heard." Another participant said, "It's nice to know they're there."

In the Rutland focus group, three out of four participants used SASH services and those who used it liked the program a lot. The three participants using SASH services rated it at 10 on a 10-point scale, commenting: "They're right there if you need them with any questions or anything that's going on," "It eases my mind," and "I'm just glad they're there. I mean they're very helpful." They all knew and loved the wellness nurses and thought they were terrific. Some types of things SASH helped them with included getting medical supplies and equipment, helping with paperwork and housework, setting up advance directives, taking blood pressure readings and checking their weight, and calling Medicare and Medicaid on their behalf. One participant said SASH contacted her a few days after she was released from the ER to see if she was okay and needed any help. Another told a story about how a friend went to a nursing home after being released from the hospital, and someone from SASH went to his apartment and

brought him clothes and books. Another participant explained how SASH went to her house and had her oxygen tanks filled before she got home from the nursing home. A few participants mentioned participating in classes provided by SASH on topics such as falls prevention, post-traumatic stress disorder, depression, and nutrition, which they found helpful.

Although the SASH program has features in place to ensure standardization in program implementation, the mixed feedback from the focus groups in the two geographic regions indicates that there was still some variation. It is important to note, however, that the focus group size was small, making it difficult to generalize participant experiences for the whole SASH program.

6.7.2 Impacts on Special Populations

The Blueprint for Health was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, behavioral health conditions, disabilities, or a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid, or who live in rural areas). Specific to Vermont, we also examine the association between the MAPCP Demonstration and the SASH population separately.

For these special populations where we find a statistically significant negative association between the Blueprint for Health and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 6-19** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 6-20** reports on changes in expenditures and utilization for rural Medicare beneficiaries.
- **Table 6-21** reports on changes in expenditures and utilization for Medicare beneficiaries participating in the SASH program.
- **Table 6-22** reports on changes in total Medicaid expenditures for the special populations expected to be affected by the demonstration.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to CGs. A *negative* value corresponds to *lower growth* in expenditures compared to the CG, whereas a *positive* value corresponds to *greater growth* in expenditures compared to the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters

associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, and a *positive* value corresponds to an *increase* in the rate of events compared to the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data. For dually eligible beneficiaries, we only examined total Medicare spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending.

- **Tables 6-23 through 6-31** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 6-32 through 6-35** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 6.7.3**.

Table 6-19
Vermont: Comparison of average MAPCP Demonstration effect estimates for total PBPM
Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 12,401)	-5.60	[-73.84, 62.64]	-6.76	[-89.46, 75.95]
Year Two (N = 14,047)	-91.77	[-194.71, 11.18]	-86.68*	[-168.35, -5.00]
Year Three (N = 14,115)	-37.28	[-139.61, 65.05]	120.90*	[28.77, 213.04]
Overall (N = 17,229)	-38.19	[-100.93, 24.55]	19.92	[-44.16, 84.01]
Overall Aggregate	-\$18,653,708		\$9,732,350	
Behavioral health conditions only				
Year One (N = 8,153)	-29.97	[-92.21, 32.27]	-12.55	[-82.39, 57.29]
Year Two (N = 9,744)	-0.18	[-72.75, 72.39]	-40.89	[-87.35, 5.57]
Year Three (N = 10,522)	-9.04	[-102.44, 84.36]	93.37*	[24.43, 162.31]
Overall (N = 12,150)	-29.71	[-80.80, 21.37]	22.65	[-23.96, 69.26]
Overall Aggregate	-\$10,302,448		\$7,853,378	
Disabled beneficiaries only				
Year One (N = 13,082)	102.36*	[49.58, 155.14]	-28.67	[-103.44, 46.10]
Year Two (N = 16,329)	21.23	[-22.92, 65.39]	-3.57	[-54.93, 47.80]
Year Three (N = 18,242)	18.72	[-42.73, 80.16]	12.75	[-37.30, 62.81]
Overall (N = 21,594)	12.17	[-20.23, 44.57]	2.30	[-36.21, 40.82]
Overall Aggregate	\$7,191,907		\$1,360,675	
Dual eligible beneficiaries only				
Year One (N = 14,021)	59.86	[-4.33, 124.04]	-6.83	[-71.26, 57.59]
Year Two (N = 17,090)	21.96	[-38.24, 82.16]	14.75	[-45.75, 75.25]
Year Three (N = 18,666)	14.19	[-43.80, 72.18]	10.07	[-42.55, 62.68]
Overall (N = 22,131)	3.66	[-43.16, 50.48]	0.55	[-40.16, 41.27]
Overall Aggregate	\$2,258,061		\$341,074	
Rural beneficiaries only				
Year One (N = 14,876)	-39.95	[-120.40, 40.50]	-42.55	[-85.80, 0.69]
Year Two (N = 17,105)	-16.73	[-97.17, 63.71]	-57.10*	[-109.81, -4.40]
Year Three (N = 19,862)	-131.16	[-327.79, 65.46]	-67.19*	[-108.26, -26.13]
Overall (N = 24,359)	-62.21	[-175.15, 50.73]	-54.11*	[-87.66, -20.56]
Overall Aggregate	-\$41,008,800		-\$35,668,842*	

(continued)

Table 6-19 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for total PBPM
Medicare expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
SASH participants ¹				
Year One (N = 1,578)	-89.82*	[-154.04, -25.60]	-90.20*	[-154.69, -25.70]
Year Two (N = 1,938)	24.61	[-53.68, 102.90]	8.84	[-60.25, 77.92]
Year Three (N = 2,143)	104.51*	[11.80, 197.21]	136.70*	[49.99, 223.41]
Overall (N = 2,258)	47.24	[-11.29, 105.76]	53.67	[-2.14, 109.48]
Overall Aggregate	\$3,406,215		\$3,870,297	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

¹ The SASH CG includes both PCMH and non-PCMH practices in the Vermont CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home; SASH = Support and Services at Home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we found little evidence that the Blueprint for Health slowed the growth of Medicare expenditures among beneficiaries with multiple chronic conditions, beneficiaries with behavioral health conditions, disabled beneficiaries, dually-eligible beneficiaries, and beneficiaries participating in the SASH program.

For rural Medicare beneficiaries attributed to Blueprint for Health practices, however, the growth in overall aggregate total Medicare expenditures was \$35.7 million lower relative to those attributed to non-PCMH comparison practices. In this subsection, we report more detailed expenditure and utilization outcomes for this population to provide additional information about what may be driving the reductions in Medicare expenditures. About 28 percent of Blueprint for Health beneficiaries lived in rural areas. Because rural beneficiaries attributed to Blueprint for Health practices experienced significantly lower rates of total Medicare expenditure growth, we

examined additional expenditure and utilization outcomes to gain a better understanding of the lower expenditure growth. These results are presented in *Table 6-20*.

Table 6-20
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among rural Medicare beneficiaries: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. non-PCMHs	
	Average estimate	90% confidence interval
Total Medicare expenditures		
Year One (N = 14,876)	-42.55	[-85.80, 0.69]
Year Two (N = 17,105)	-57.10*	[-109.81, -4.40]
Year Three (N = 19,862)	-67.19*	[-108.26, -26.13]
Overall (N = 24,359)	-54.11*	[-87.66, -20.56]
Overall Aggregate	-\$35,668,842*	
Acute-care expenditures		
Year One (N = 14,876)	9.52	[-12.35, 31.38]
Year Two (N = 17,105)	3.24	[-22.11, 28.60]
Year Three (N = 19,862)	-15.41	[-35.64, 4.83]
Overall (N = 24,359)	-1.92	[-15.41, 11.57]
Overall Aggregate	-\$1,265,394	
ER visits not leading to hospitalization (expenditures)		
Year One (N = 14,876)	-1.17	[-4.71, 2.37]
Year Two (N = 17,105)	-4.59*	[-9.14, -0.04]
Year Three (N = 19,862)	-1.74	[-6.84, 3.37]
Overall (N = 24,359)	-3.01	[-7.26, 1.24]
Overall Aggregate	-\$1,984,749	
Specialty physician expenditures		
Year One (N = 14,876)	-2.58	[-6.69, 1.52]
Year Two (N = 17,105)	-4.29*	[-8.08, -0.51]
Year Three (N = 19,862)	-8.63*	[-12.96, -4.30]
Overall (N = 24,359)	-5.66*	[-8.94, -2.38]
Overall Aggregate	-\$3,732,378*	
Primary care physician expenditures		
Year One (N = 14,876)	-2.11	[-5.66, 1.43]
Year Two (N = 17,105)	-3.01	[-6.96, 0.94]
Year Three (N = 19,862)	-4.18	[-8.47, 0.12]
Overall (N = 24,359)	-2.92	[-6.81, 0.98]
Overall Aggregate	-\$1,921,633	

(continued)

Table 6-20 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among rural Medicare beneficiaries:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. non-PCMHs	
	Average estimate	90% confidence interval
All-cause admissions		
Year One (N = 14,876)	3.60	[-0.45, 7.66]
Year Two (N = 17,105)	0.24	[-3.27, 3.75]
Year Three (N = 19,862)	-1.30	[-5.65, 3.04]
Overall (N = 24,359)	0.78	[-1.95, 3.50]
Overall Aggregate	171	
ER visits not leading to a hospitalization		
Year One (N = 14,876)	25.38*	[9.07, 41.69]
Year Two (N = 17,105)	16.07*	[3.62, 28.52]
Year Three (N = 19,862)	16.97*	[4.10, 29.84]
Overall (N = 24,359)	18.06*	[6.36, 29.77]
Overall Aggregate	3,969*	
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 2,023)	-8.89	[-40.82, 23.03]
Year Two (N = 2,191)	-29.21	[-65.20, 6.79]
Year Three (N = 2,350)	0.58	[-23.33, 24.49]
Overall (N = 5,710)	-10.54	[-29.59, 8.52]
Overall Aggregate	-2,315	

NOTES:

- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Total Medicare expenditures and expenditures for acute care, ER visits not leading to hospitalization, primary care physicians, and specialty physicians are PBPM expenditures.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments or utilization relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

We found that the lower growth in total Medicare expenditures among rural Medicare beneficiaries assigned to Blueprint for Health practices could not be fully explained by the examined expenditure or utilization measures. The lower growth in total Medicare expenditures can be only partially explained by lower growth in specialty physician expenditures. Specifically, **Table 6-20** shows the following:

- Among rural Medicare beneficiaries, the growth in *overall aggregate specialty physician expenditures* was \$3.7 million lower for Blueprint for Health beneficiaries compared to rural beneficiaries in non-PCMH practices.
- Among rural Medicare beneficiaries, **ER visits not leading to a hospitalization** increased by 3,969 visits among Blueprint for Health beneficiaries compared to rural beneficiaries in non-PCMH practices.

As reported in **Table 6-19**, the overall growth in total Medicare expenditures was not significantly different for SASH Medicare beneficiaries attributed to Blueprint for Health practices relative to all Medicare beneficiaries attributed to PCMH or non-PCMH comparison practices. However, because the SASH program was a significant financial investment of the MAPCP Demonstration in Vermont, in this subsection we report more detailed expenditure and utilization outcomes for this special population. About 3 percent of Blueprint for Health beneficiaries participated in the SASH program during the evaluation period. These results for this special population are presented in **Table 6-21**.

Table 6-21
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries participating in the SASH program:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare expenditures				
Year One (N = 1,578)	-89.82*	[-154.04, -25.60]	-90.20*	[-154.69, -25.70]
Year Two (N = 1,938)	24.61	[-53.68, 102.90]	8.84	[-60.25, 77.92]
Year Three (N = 2,143)	104.51*	[11.80, 197.21]	136.70*	[49.99, 223.41]
Overall (N = 2,258)	47.24	[-11.29, 105.76]	53.67	[-2.14, 109.48]
Overall Aggregate	\$3,406,215		\$3,870,297	

(continued)

Table 6-21 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries participating in the SASH program:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Acute-care expenditures				
Year One (N = 1,578)	-37.26*	[-73.75, -0.77]	-44.85*	[-82.75, -6.96]
Year Two (N = 1,938)	8.08	[-32.63, 48.78]	15.94	[-24.31, 56.18]
Year Three (N = 2,143)	31.90	[-10.97, 74.78]	38.84	[-4.41, 82.09]
Overall (N = 2,258)	10.93	[-17.54, 39.39]	13.75	[-14.05, 41.55]
Overall Aggregate	\$787,914		\$991,745	
ER visits not leading to hospitalization (expenditures)				
Year One (N = 1,578)	4.09	[-0.59, 8.76]	0.48	[-3.60, 4.56]
Year Two (N = 1,938)	5.47	[-0.48, 11.42]	-2.41	[-7.37, 2.55]
Year Three (N = 2,143)	9.29*	[2.57, 16.01]	5.69	[-0.52, 11.91]
Overall (N = 2,258)	7.42*	[2.09, 12.75]	2.86	[-1.65, 7.37]
Overall Aggregate	\$535,014*		\$206,088	
Specialty physician expenditures				
Year One (N = 1,578)	-11.46*	[-15.82, -7.10]	-8.94*	[-13.32, -4.56]
Year Two (N = 1,938)	-11.72*	[-17.10, -6.33]	-8.66*	[-12.89, -4.44]
Year Three (N = 2,143)	-18.64*	[-25.76, -11.53]	-12.31*	[-16.65, -7.97]
Overall (N = 2,258)	-15.01*	[-20.02, -10.01]	-10.56*	[-13.79, -7.33]
Overall Aggregate	-\$1,082,618*		-\$761,672*	
Primary care physician expenditures				
Year One (N = 1,578)	-4.32*	[-8.04, -0.61]	-3.13*	[-6.20, -0.06]
Year Two (N = 1,938)	-0.37	[-5.87, 5.13]	-1.68	[-5.22, 1.85]
Year Three (N = 2,143)	0.94	[-3.67, 5.55]	2.41	[-1.30, 6.13]
Overall (N = 2,258)	0.23	[-4.21, 4.68]	0.55	[-2.82, 3.91]
Overall Aggregate	\$16,685		\$39,349	
All-cause admissions				
Year One (N = 1,578)	-7.51	[-17.62, 2.61]	-3.75	[-12.25, 4.75]
Year Two (N = 1,938)	2.07	[-9.78, 13.92]	2.56	[-5.10, 10.22]
Year Three (N = 2,143)	7.31	[-5.63, 20.26]	9.71	[-0.32, 19.74]
Overall (N = 2,258)	2.79	[-6.76, 12.35]	5.08	[-1.60, 11.75]
Overall Aggregate	67		122	
ER visits not leading to a hospitalization				
Year One (N = 1,578)	30.32*	[8.12, 52.52]	20.89*	[0.60, 41.18]
Year Two (N = 1,938)	34.37*	[12.03, 56.71]	14.62	[-6.31, 35.56]
Year Three (N = 2,143)	43.88*	[20.97, 66.79]	40.39*	[17.76, 63.01]
Overall (N = 2,258)	37.91*	[18.89, 56.94]	29.11*	[9.96, 48.26]
Overall Aggregate	911*		700*	

(continued)

Table 6-21 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries participating in the SASH program:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 254)	-20.44	[-80.64, 39.76]	3.14	[-51.19, 57.47]
Year Two (N = 355)	14.38	[-21.86, 50.61]	40.71*	[4.22, 77.20]
Year Three (N = 453)	-20.06	[-78.25, 38.12]	3.78	[-40.07, 47.63]
Overall (N = 861)	-6.76	[-48.87, 35.35]	18.25	[-15.53, 52.03]
Overall Aggregate	-163		439	

NOTES:

- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Total Medicare expenditures and expenditures for acute care, ER visits not leading to hospitalization, primary care physicians, and specialty physicians are PBPM expenditures.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments or utilization relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home; SASH = Support and Services at Home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries participating in the SASH program, we found no evidence that Medicare beneficiaries participating in the SASH program and assigned to Blueprint for Health practices experienced lower growth in Medicare expenditures or reduced rates of health care utilization. Specifically, **Table 6-21** shows the following:

- Although statistically significant differences were observed in some years, the *overall* growth in **total Medicare expenditures** was not statistically significantly different

among beneficiaries participating in the SASH program in Blueprint for Health practices relative to beneficiaries in PCMH or non-PCMH practices.

- Among Medicare beneficiaries participating in the SASH program, the growth in *overall aggregate* expenditures for **ER visits not leading to hospitalization** was approximately \$535,000 greater for beneficiaries assigned to Blueprint for Health practices than among beneficiaries in PCMH practices.
- Among Medicare beneficiaries participating in the SASH program, the growth in *overall aggregate* **specialty physician expenditures** was \$1.1 million lower for Blueprint for Health beneficiaries compared to beneficiaries in PCMH practices and approximately \$762,000 lower compared to beneficiaries in non-PCMH practices.
- Among Medicare beneficiaries participating in the SASH program, **ER visits not leading to a hospitalization** increased by 911 visits among Blueprint for Health beneficiaries compared to beneficiaries in PCMH practices and increased by 700 visits compared to beneficiaries in non-PCMH practices.

Table 6-22
Vermont: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only										
Year One	N/A	N/A	N/A	N/A	N/A	10,613	82.82*	[35.45, 130.20]	8.92	[-46.99, 64.82]
Year Two	N/A	N/A	N/A	N/A	N/A	12,129	123.99*	[70.75, 177.22]	82.33*	[29.00, 135.66]
Year Three	N/A	N/A	N/A	N/A	N/A	12,521	57.31*	[8.93, 105.68]	16.19	[-50.28, 82.66]
Overall Overall Aggregate	N/A	N/A	N/A	N/A	N/A	15,801	49.42* \$19,629,405*	[9.27, 89.58]	4.79 \$1,903,702	[-43.65, 53.24]
Behavioral health conditions only										
Year One	1413	240.49*	[91.58, 389.41]	297.94*	[173.36, 422.53]	3388	65.72	[-55.15, 186.59]	105.26*	[35.87, 174.65]
Year Two	2075	304.52*	[109.21, 499.83]	374.22*	[230.01, 518.44]	3942	100.56	[-22.92, 224.03]	172.68*	[102.20, 243.15]
Year Three	2158	411.15*	[268.04, 554.26]	402.16*	[271.53, 532.80]	4425	-70.25	[-222.28, 81.79]	18.63	[-51.36, 88.61]
Overall Overall Aggregate	2,472	287.36* \$18,995,689*	[145.75, 428.97]	331.36* \$21,904,500*	[216.28, 446.45]	5,663	-28.01 -\$3,679,594	[-162.81, 106.78]	45.60 \$5,989,967	[-16.73, 107.93]

(continued)

Table 6-22 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Disabled beneficiaries only										
Year One	1,043	-380.73	[-921.74, 160.27]	-1375.78*	[-2643.71, -107.85]	3,473	39.54	[-121.72, 200.81]	-9.06	[-131.08, 112.95]
Year Two	1,689	98.02	[-286.28, 482.32]	-1155.75	[-2792.06, 480.56]	3,939	312.22*	[182.43, 442.01]	212.62*	[124.93, 300.32]
Year Three	1,708	257.80	[-215.33, 730.94]	-838.12	[-2141.78, 465.54]	4,063	123.06	[-50.86, 296.99]	35.46	[-107.41, 178.33]
Overall	1,864	49.82	[-338.04, 437.68]	-998.92	[-2277.58, 279.74]	4,670	72.03	[-28.59, 172.65]	14.52	[-72.59, 101.64]
Overall Aggregate		\$2,669,790		-\$53,529,910			\$9,917,353		\$1,999,828	
Asthma diagnosis only										
Year One	2,418	55.61	[-155.81, 267.04]	-28.86	[-122.62, 64.90]	5,332	173.58*	[45.35, 301.81]	97.15	[-50.03, 244.32]
Year Two	4,386	150.63	[-51.97, 353.24]	45.25	[-41.45, 131.94]	7,470	238.40*	[109.78, 367.02]	115.63	[-29.72, 260.99]
Year Three	4,990	269.79*	[108.80, 430.78]	110.22*	[26.27, 194.16]	9,140	177.89*	[48.28, 307.50]	92.98	[-25.43, 211.39]
Overall	5,764	181.84*	[31.19, 332.49]	73.20	[-4.21, 150.61]	12,006	179.56*	[50.71, 308.42]	32.55	[-88.12, 153.23]
Overall Aggregate		\$24,613,487*		\$9,907,730			\$40,845,598*		\$7,404,546	

(continued)

Table 6-22 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures among special populations:
Fourteen quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Rural beneficiaries only										
Year One	25,839	77.38*	[5.72, 149.04]	23.65	[-72.09, 119.40]	23,020	42.93	[-4.83, 90.68]	10.95	[-52.22, 74.13]
Year Two	36,964	81.28*	[21.07, 141.49]	42.72	[-36.55, 121.99]	27,759	77.64*	[28.12, 127.16]	24.27	[-36.68, 85.22]
Year Three	39,273	-4.48	[-59.75, 50.78]	12.86	[-68.43, 94.15]	30,601	51.81	[-3.58, 107.19]	24.69	[-49.93, 99.31]
Overall	46,658	27.72	[-6.79, 62.22]	20.81	[-40.31, 81.93]	41,914	36.90	[-12.98, 86.78]	-4.76	[-59.30, 49.77]
Overall Aggregate		\$32,214,025		\$24,185,979			\$31,313,942		-\$4,042,360	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children and adults in these special populations, we found no evidence that the Blueprint for Health reduced the growth of total Medicaid expenditures. Specifically, *Table 6-22* shows the following:

- Among **children with behavioral health conditions** assigned to Blueprint for Health practices, the growth in *overall aggregate* total Medicaid expenditures was \$19 million greater compared to similar beneficiaries in PCMH practices and \$21.9 million greater compared to similar beneficiaries in non-PCMH practices.
- Among **children with asthma** assigned to Blueprint for Health practices, the growth in *overall aggregate* total Medicaid expenditures was \$24.6 million greater compared to similar beneficiaries in PCMH practices.
- Among **adults with multiple chronic conditions** assigned to Blueprint for Health practices, the growth in *overall aggregate* total Medicaid expenditures was \$19.6 million greater compared to beneficiaries in PCMH practices.
- Among **adults with asthma** assigned to Blueprint for Health practices, the growth in *overall aggregate* total Medicaid expenditures was \$40.8 million greater compared to beneficiaries in PCMH practices.

No significant impacts of Blueprint for Health were found for total Medicaid expenditures for disabled children and adults or rural children and adults.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group is defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the chronic conditions and the CMS-HCC risk category can be found in *Appendix D*. Over the first 14 quarters of the demonstration, 22 percent of Medicare beneficiaries (demonstration and CGs) fit this profile in Vermont. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before they entered the Blueprint for Health (or CG). Over the course of the demonstration, 24 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile. Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

The Blueprint for Health was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the Blueprint for Health and two CGs: PCMHs and non-PCMHs. Both PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- *Table 6-23* reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.

- **Table 6-24** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 6-25** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See **Section 6.3.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data.

Table 6-23
Vermont: Comparison of average MAPCP Demonstration effect estimates for process of care indicators among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 3,481)	0.25	[-2.13, 2.63]	-0.41	[-2.26, 1.44]
Year Two (N = 2,539)	-0.91	[-3.38, 1.57]	-2.88*	[-5.75, -0.01]
Year Three (N = 1,654)	2.19	[-4.07, 8.46]	0.33	[-4.09, 4.76]
Overall (N = 3,689)	0.29	[-1.99, 2.56]	-1.07	[-3.36, 1.23]
Retinal eye examination				
Year One (N = 3,481)	-0.88	[-3.19, 1.43]	-0.25	[-3.97, 3.47]
Year Two (N = 2,539)	-4.65	[-9.89, 0.59]	-1.26	[-5.15, 2.63]
Year Three (N = 1,654)	-4.48*	[-8.88, -0.09]	-0.07	[-5.03, 4.88]
Overall (N = 3,689)	-2.91	[-5.86, 0.05]	-0.55	[-3.50, 2.40]
LDL-C screening				
Year One (N = 3,481)	-7.51*	[-10.57, -4.45]	-3.05	[-6.84, 0.75]
Year Two (N = 2,539)	-6.32*	[-9.07, -3.57]	-0.64	[-5.37, 4.09]
Year Three (N = 1,654)	-4.82*	[-8.16, -1.48]	-4.02	[-11.96, 3.91]
Overall (N = 3,689)	-6.54*	[-9.06, -4.01]	-2.46	[-6.92, 2.00]
Medical attention for nephropathy				
Year One (N = 3,481)	0.90	[-2.66, 4.45]	-3.50	[-9.32, 2.31]
Year Two (N = 2,539)	-3.05	[-8.51, 2.41]	-3.21	[-7.26, 0.83]
Year Three (N = 1,654)	-2.17	[-5.50, 1.17]	-3.15	[-7.98, 1.67]
Overall (N = 3,689)	-1.07	[-4.32, 2.18]	-3.33	[-7.67, 1.01]

(continued)

Table 6-23 (continued)
**Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration**

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received all 4 diabetes tests				
Year One (N = 3,481)	-2.44	[-6.84, 1.97]	1.00	[-2.05, 4.05]
Year Two (N = 2,539)	-7.58*	[-11.63, -3.54]	-3.37	[-8.34, 1.60]
Year Three (N = 1,654)	-6.92*	[-10.39, -3.44]	0.05	[-4.89, 4.99]
Overall (N = 3,689)	-5.11*	[-7.50, -2.71]	-0.65	[-3.77, 2.48]
Received none of the 4 diabetes tests				
Year One (N = 3,481)	0.95*	[0.32, 1.58]	0.25	[-1.21, 1.70]
Year Two (N = 2,539)	-0.16	[-3.71, 3.39]	0.75	[-0.24, 1.74]
Year Three (N = 1,654)	-0.10	[-1.37, 1.16]	0.58	[-1.14, 2.31]
Overall (N = 3,689)	0.36	[-0.88, 1.60]	0.49	[-0.63, 1.60]
Total lipid panel				
Year One (N = 7,577)	-1.98	[-7.03, 3.07]	-3.39*	[-5.98, -0.81]
Year Two (N = 5,393)	-2.58	[-6.04, 0.88]	-4.72*	[-8.43, -1.01]
Year Three (N = 3,685)	-5.01*	[-9.50, -0.52]	-3.33	[-10.15, 3.50]
Overall (N = 8,633)	-2.84	[-6.80, 1.11]	-3.81*	[-7.23, -0.38]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence that the Blueprint for Health decreased the likelihood of some of the process of care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 6-23** shows the following:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving an **LDL-C screening** or **all four diabetes tests** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH comparison practices only.

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* likelihood of receiving a **total lipid panel** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, medical attention for nephropathy, receipt of none of the diabetes tests, and retinal eye examinations.

Table 6-24
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing					
Year One	978	-0.37	[-2.74, 2.00]	0.04	[-2.78, 2.85]
Year Two	1,061	-2.02	[-7.00, 2.95]	-2.87	[-7.20, 1.46]
Year Three	827	-2.39	[-7.05, 2.27]	-3.65	[-9.48, 2.18]
Overall	1,503	-1.56	[-4.59, 1.46]	-2.10	[-5.66, 1.45]
Retinal eye examination					
Year One	978	-9.19*	[-15.07, -3.32]	-7.38*	[-13.46, -1.30]
Year Two	1,061	-5.18	[-13.31, 2.94]	2.63	[-5.74, 11.00]
Year Three	827	-4.34	[-12.21, 3.54]	-3.27	[-17.88, 11.33]
Overall	1,503	-6.31*	[-11.83, -0.79]	-2.49	[-9.63, 4.65]
LDL-C screening					
Year One	978	-2.57	[-9.18, 4.03]	-9.03*	[-17.64, -0.42]
Year Two	1,061	-12.67*	[-24.51, -0.83]	-9.78*	[-17.39, -2.17]
Year Three	827	-9.11	[-21.28, 3.05]	-13.44	[-27.21, 0.33]
Overall	1,503	-8.20*	[-15.69, -0.70]	-10.58*	[-19.30, -1.86]
Medical attention for nephropathy					
Year One	978	4.85	[-6.15, 15.84]	0.20	[-6.65, 7.05]
Year Two	1,061	-3.16	[-14.66, 8.34]	-0.24	[-9.66, 9.18]
Year Three	827	13.50*	[0.19, 26.81]	-6.88	[-17.73, 3.97]
Overall	1,503	4.38	[-1.77, 10.53]	-2.00	[-6.72, 2.71]
Received all 4 diabetes tests					
Year One	978	-8.21	[-17.05, 0.64]	-8.59*	[-15.64, -1.53]
Year Two	1,061	-3.31	[-11.18, 4.55]	2.96	[-3.98, 9.90]
Year Three	827	0.41	[-8.38, 9.20]	-3.03	[-16.72, 10.67]
Overall	1,503	-3.91	[-8.72, 0.91]	-2.71	[-8.26, 2.85]
Received none of the 4 diabetes tests					
Year One	978	0.41	[-3.96, 4.79]	0.80	[-1.04, 2.64]
Year Two	1,061	2.53	[-2.98, 8.05]	-2.67	[-9.02, 3.68]
Year Three	827	1.01	[-4.72, 6.73]	3.57	[-2.94, 10.08]
Overall	1,503	1.37	[-2.60, 5.34]	0.31	[-1.41, 2.04]

(continued)

Table 6-24 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Breast cancer screening					
Year One	2,532	3.90	[-0.08, 7.87]	4.08*	[0.74, 7.42]
Year Two	2,685	-2.72	[-7.58, 2.14]	-2.83	[-7.52, 1.85]
Year Three	1,989	-1.33	[-5.19, 2.53]	1.69	[-2.34, 5.72]
Overall	3,601	-0.01	[-3.37, 3.35]	0.84	[-2.04, 3.73]
Cervical cancer screening					
Year One	4,662	0.24	[-2.01, 2.49]	-0.78	[-3.81, 2.26]
Year Two	4,866	-0.31	[-4.20, 3.59]	-3.54	[-7.33, 0.25]
Year Three	3,446	-0.97	[-4.25, 2.32]	-3.30	[-10.85, 4.25]
Overall	6,557	-0.29	[-2.48, 1.91]	-2.49	[-6.06, 1.09]
Appropriate use of antidepressant medication management: 12 weeks					
Year One	1,868	2.04	[-4.78, 8.85]	-3.30	[-12.37, 5.78]
Year Two	1,465	8.62*	[1.03, 16.22]	-8.40*	[-16.33, -0.47]
Year Three	961	15.71*	[5.96, 25.46]	5.82	[-1.39, 13.04]
Overall	3,152	7.43*	[1.82, 13.05]	-2.96	[-7.61, 1.69]
Appropriate use of antidepressant medication management: 6 months					
Year One	1,868	3.46	[-0.28, 7.19]	-3.00	[-9.05, 3.05]
Year Two	1,465	9.10*	[1.51, 16.70]	-8.78*	[-14.68, -2.88]
Year Three	961	12.63*	[6.82, 18.43]	7.73*	[3.25, 12.21]
Overall	3,152	7.50*	[3.46, 11.54]	-2.53	[-5.92, 0.86]
Appropriate use of asthma medications					
Year One	571	-2.80	[-9.54, 3.93]	-6.82	[-14.02, 0.38]
Year Two	601	-0.53	[-6.18, 5.12]	-14.76*	[-24.58, -4.93]
Year Three	413	-6.25	[-18.23, 5.74]	-10.83*	[-21.36, -0.29]
Overall	1,061	-2.84	[-9.38, 3.71]	-10.87*	[-18.65, -3.10]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found evidence that Blueprint for Health decreased the likelihood of LDL-C screenings. We also found some evidence of an impact on retinal eye examinations and appropriate use of medications, though the statistical significance was not consistent across both CGs. Specifically, **Table 6-24** shows the following:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **LDL-C screening** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH comparison practices.
- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **retinal eye examinations** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH comparison practices only.
- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **appropriate use of antidepressant medication management** increased among Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH comparison practices only.
- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **appropriate use of asthma medications** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, medical attention for nephropathy, receipt of all four diabetes tests, receipt of none of the diabetes tests, breast cancer screening, and cervical cancer screening.

Table 6-25
Vermont: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 12,401)	1.05	[-2.07, 4.16]	-1.12	[-3.13, 0.90]
Year Two (N = 14,047)	1.47	[-2.60, 5.54]	0.86	[-1.75, 3.47]
Year Three (N = 14,115)	2.12	[-3.91, 8.14]	2.77*	[0.65, 4.89]
Overall (N = 17,229)	1.96	[-1.93, 5.84]	1.07	[-0.74, 2.88]
PQI admissions—overall ²				
Year One (N = 12,401)	6.12	[-2.12, 14.37]	7.32*	[3.59, 11.06]
Year Two (N = 14,047)	5.75	[-2.55, 14.06]	4.65*	[0.58, 8.72]
Year Three (N = 14,115)	3.34	[-2.60, 9.27]	6.96*	[1.17, 12.75]
Overall (N = 17,229)	4.54	[-2.04, 11.13]	5.86*	[2.30, 9.42]
PQI admissions—acute ³				
Year One (N = 12,401)	2.94	[-0.95, 6.83]	3.18*	[0.02, 6.33]
Year Two (N = 14,047)	4.60	[-0.45, 9.65]	1.19	[-0.97, 3.35]
Year Three (N = 14,115)	2.93	[-0.40, 6.26]	3.91	[-0.12, 7.95]
Overall (N = 17,229)	3.31	[-0.24, 6.86]	2.52*	[0.03, 5.00]
PQI admissions—chronic ⁴				
Year One (N = 12,401)	3.35	[-2.22, 8.91]	4.22	[-0.11, 8.55]
Year Two (N = 14,047)	1.33	[-3.14, 5.80]	3.42	[-0.50, 7.35]
Year Three (N = 14,115)	0.60	[-3.38, 4.58]	3.32	[-0.25, 6.89]
Overall (N = 17,229)	1.44	[-2.42, 5.30]	3.47*	[0.24, 6.69]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with multiple chronic conditions, we found some evidence that Blueprint for Health increased the rate of preventable hospitalizations, though statistical significance was not seen across both CGs. Specifically, **Table 6-25** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **overall, chronic, and acute PQI admissions** increased among Blueprint for Health Medicare beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events.

The Blueprint for Health is expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the Blueprint for Health and two CGs: PCMHs and non-PCMHs. Both PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 6-26** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the continuity of care index.
- **Table 6-27** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 6.4.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data.

Table 6-26
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 12,401)	-13.54	[-140.45, 113.36]	-53.71	[-157.82, 50.40]
Year Two (N = 14,047)	10.65	[-152.81, 174.10]	-35.94	[-136.92, 65.05]
Year Three (N = 14,115)	-22.40	[-143.61, 98.80]	-2.15	[-102.63, 98.33]
Overall (N = 17,229)	0.88	[-120.61, 122.37]	-24.64	[-121.25, 71.98]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 12,401)	-9.89	[-146.21, 126.43]	-49.05	[-107.24, 9.13]
Year Two (N = 14,047)	4.99	[-120.06, 130.05]	-47.00	[-109.72, 15.73]
Year Three (N = 14,115)	-82.34	[-265.78, 101.11]	-75.47	[-153.01, 2.07]
Overall (N = 17,229)	-21.62	[-160.41, 117.17]	-56.72	[-119.11, 5.68]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 12,401)	-12.89	[-32.63, 6.85]	1.34	[-15.59, 18.27]
Year Two (N = 14,047)	-25.10*	[-50.13, -0.07]	-8.67	[-23.44, 6.10]
Year Three (N = 14,115)	-44.31*	[-77.55, -11.06]	-17.66	[-44.18, 8.86]
Overall (N = 17,229)	-27.80*	[-47.52, -8.09]	-10.22	[-26.39, 5.96]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 12,197)				
1st quintile	-1.19	[-8.57, 6.19]	-0.90	[-4.54, 2.73]
5th quintile	0.65	[-3.28, 4.59]	0.52	[-1.55, 2.59]
Year Two (N = 9,488)				
1st quintile	-3.63	[-12.18, 4.91]	-1.88	[-5.29, 1.54]
5th quintile	1.98	[-2.22, 6.18]	1.11	[-0.87, 3.08]
Year Three (N = 6,577)				
1st quintile	-3.40	[-7.34, 0.54]	-4.26*	[-8.28, -0.24]
5th quintile	2.02	[-0.16, 4.20]	2.47*	[0.28, 4.66]
Overall (N = 13,521)				
1st quintile	-2.52	[-9.36, 4.31]	-2.01	[-5.44, 1.42]
5th quintile	1.42	[-2.12, 4.95]	1.17	[-0.77, 3.11]

(continued)

Table 6-26 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 2,577)	38.78	[-32.05, 109.62]	2.70	[-58.21, 63.61]
Year Two (N = 2,853)	1.02	[-69.10, 71.13]	-54.15	[-113.15, 4.86]
Year Three (N = 2,783)	-5.87	[-73.39, 61.65]	-76.22*	[-139.13, -13.31]
Overall (N = 6,605)	7.82	[-50.01, 65.66]	-32.73	[-83.16, 17.70]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 3,321)	-8.90	[-41.08, 23.27]	10.48	[-12.62, 33.59]
Year Two (N = 3,741)	-25.12	[-75.63, 25.38]	-12.38	[-38.34, 13.57]
Year Three (N = 3,691)	5.34	[-19.19, 29.87]	-3.98	[-29.79, 21.83]
Overall (N = 8,317)	-5.79	[-32.42, 20.83]	-3.19	[-21.31, 14.94]

(continued)

Table 6-26 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care)				
Year One (N = 16,476)				
1st quintile	-3.66*	[-5.86, -1.45]	-2.04*	[-3.78, -0.30]
5th quintile	3.92*	[1.84, 6.01]	2.38*	[0.48, 4.29]
Year Two (N = 13,280)				
1st quintile	-3.91*	[-7.03, -0.80]	-2.78*	[-5.38, -0.17]
5th quintile	4.07*	[1.21, 6.94]	3.10*	[0.45, 5.74]
Year Three (N = 9,487)				
1st quintile	-7.78*	[-13.09, -2.47]	-4.45*	[-7.58, -1.32]
5th quintile	7.28*	[3.47, 11.09]	4.81*	[1.94, 7.68]
Overall (N = 16,817)				
1st quintile	-4.74*	[-7.84, -1.64]	-2.87*	[-5.06, -0.68]
5th quintile	4.79*	[2.16, 7.41]	3.21*	[1.01, 5.42]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the Blueprint for Health in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that Blueprint for Health affected the access to care and care coordination measures, with the exception of rates of surgical specialist visits and continuity of care. Specifically, **Table 6-26** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **surgical specialist visits** decreased among Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, **continuity of care**, as measured by concentration of visits, increased among Blueprint for Health beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices. Specifically, Blueprint for Health decreased the *overall* likelihood that a demonstration beneficiary's continuity of care index was in the lowest quintile and increased the *overall* likelihood that the continuity of care index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, and the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care and medical specialist visits, primary care visits as a percentage of total visits, 14-day follow-up visits following discharge, and 30-day unplanned readmissions.

Table 6-27
Vermont: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions: First four years of MAPCP Demonstration

Outcome	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions					
Year One	1,166	2.51	[-0.37, 5.38]	2.50	[-0.20, 5.20]
Year Two	1,384	1.62	[-1.95, 5.18]	4.40*	[0.53, 8.26]
Year Three	1,461	4.01	[-0.29, 8.32]	1.58	[-1.50, 4.66]
Overall	3,367	2.49	[-0.15, 5.12]	3.06*	[0.29, 5.84]

NOTES:

- There were concerns about the accuracy of the provider specialty information reported on Vermont's Medicaid claims, so primary care, medical specialist, surgical specialist, and primary care visits as a percentage of total visits could not be reported.
- 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates for 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults with multiple chronic conditions, we were able to examine only one measure of access to care and care coordination. **Table 6-27** shows that for adult Medicaid beneficiaries assigned to Blueprint for Health practices the likelihood of having 30-day unplanned readmissions increased compared to beneficiaries assigned to non-PCMH practices.

This next section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the Blueprint for Health and two CGs: PCMHs and non-PCMHs. Both PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 6-28** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.

- **Table 6-29** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 6-30** reports on changes in *all-cause admissions and all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 6-31** reports on changes in *all-cause admissions and all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 6.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data.

Table 6-28
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 12,401)	-5.60	[-73.84, 62.64]	-6.76	[-89.46, 75.95]
Year Two (N = 14,047)	-91.77	[-194.71, 11.18]	-86.68*	[-168.35, -5.00]
Year Three (N = 14,115)	-37.28	[-139.61, 65.05]	120.90*	[28.77, 213.04]
Overall (N = 17,229)	-38.19	[-100.93, 24.55]	19.92	[-44.16, 84.01]
Overall Aggregate	-\$18,653,708		\$9,732,350	
Acute care				
Year One (N = 12,401)	36.52	[-17.05, 90.10]	-4.00	[-60.37, 52.37]
Year Two (N = 14,047)	-23.10	[-122.52, 76.31]	-31.32	[-81.71, 19.07]
Year Three (N = 14,115)	33.80	[-12.09, 79.69]	60.67*	[14.96, 106.37]
Overall (N = 17,229)	20.70	[-34.95, 76.34]	14.60	[-21.28, 50.48]
Overall Aggregate	\$10,111,180		\$7,132,919	
Post-acute-care				
Year One (N = 12,401)	-31.05*	[-51.95, -10.15]	-29.55*	[-57.35, -1.75]
Year Two (N = 14,047)	-31.21	[-70.54, 8.11]	-41.39*	[-76.01, -6.78]
Year Three (N = 14,115)	-36.99	[-93.23, 19.24]	21.60	[-12.99, 56.19]
Overall (N = 17,229)	-31.61	[-66.98, 3.76]	-15.74	[-42.91, 11.44]
Overall Aggregate	-\$15,440,275		-\$7,686,586	

(continued)

Table 6-28 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures
among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 12,401)	1.83	[-5.84, 9.49]	-1.79	[-7.95, 4.37]
Year Two (N = 14,047)	-1.48	[-10.38, 7.41]	-6.87	[-15.79, 2.05]
Year Three (N = 14,115)	4.61	[-3.85, 13.07]	1.84	[-5.70, 9.37]
Overall (N = 17,229)	1.18	[-6.36, 8.73]	-2.91	[-9.90, 4.07]
Overall Aggregate	\$577,871		-\$1,422,139	
Outpatient				
Year One (N = 12,401)	31.59*	[12.58, 50.59]	28.89*	[6.48, 51.30]
Year Two (N = 14,047)	19.55*	[3.22, 35.87]	7.27	[-9.29, 23.84]
Year Three (N = 14,115)	15.45	[-1.67, 32.57]	13.76	[-6.03, 33.55]
Overall (N = 17,229)	22.12*	[7.54, 36.69]	15.52	[-1.39, 32.44]
Overall Aggregate	\$10,803,603*		\$7,583,597	
Specialty physician				
Year One (N = 12,401)	-9.13	[-23.48, 5.23]	-1.88	[-8.75, 4.98]
Year Two (N = 14,047)	-18.34*	[-34.44, -2.25]	-0.70	[-6.01, 4.61]
Year Three (N = 14,115)	-14.16*	[-23.92, -4.39]	0.65	[-4.68, 5.98]
Overall (N = 17,229)	-13.45*	[-24.20, -2.69]	-0.75	[-5.26, 3.76]
Overall Aggregate	-\$6,568,641*		-\$366,909	
Primary care physician				
Year One (N = 12,401)	-5.95*	[-10.24, -1.66]	-4.91*	[-8.39, -1.42]
Year Two (N = 14,047)	-3.98	[-10.49, 2.53]	-5.65*	[-9.39, -1.90]
Year Three (N = 14,115)	-1.60	[-7.38, 4.17]	-0.42	[-4.75, 3.91]
Overall (N = 17,229)	-2.82	[-8.03, 2.40]	-3.24	[-6.83, 0.36]
Overall Aggregate	-\$1,375,337		-\$1,580,324	
Home health				
Year One (N = 12,401)	-4.66	[-20.06, 10.74]	14.45*	[5.27, 23.63]
Year Two (N = 14,047)	-7.32	[-28.37, 13.74]	9.82	[-0.90, 20.54]
Year Three (N = 14,115)	-8.99	[-31.89, 13.91]	17.49*	[7.58, 27.39]
Overall (N = 17,229)	-9.83	[-28.92, 9.26]	15.24*	[6.40, 24.08]
Overall Aggregate	-\$4,803,666		\$7,444,392*	
Other non-facility				
Year One (N = 12,401)	2.50*	[0.11, 4.89]	1.90	[-1.46, 5.25]
Year Two (N = 14,047)	1.62	[-0.52, 3.76]	0.22	[-3.37, 3.81]
Year Three (N = 14,115)	2.46*	[0.08, 4.85]	4.32*	[1.50, 7.15]
Overall (N = 17,229)	2.34*	[0.91, 3.76]	1.86	[-0.84, 4.57]
Overall Aggregate	\$1,140,811*		\$910,577	

(continued)

Table 6-28 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures
among Medicare beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Laboratory				
Year One (N = 12,401)	-1.11	[-2.58, 0.36]	-2.15*	[-3.40, -0.90]
Year Two (N = 14,047)	-0.97	[-2.44, 0.49]	-1.81*	[-3.08, -0.54]
Year Three (N = 14,115)	-1.57	[-5.17, 2.04]	-2.07*	[-3.74, -0.40]
Overall (N = 17,229)	-0.87	[-2.67, 0.92]	-2.04*	[-3.29, -0.79]
Overall Aggregate	-\$427,378		-\$996,133*	
Imaging				
Year One (N = 12,401)	-1.41*	[-2.80, -0.01]	-1.96*	[-2.83, -1.08]
Year Two (N = 14,047)	0.11	[-2.30, 2.52]	-1.33*	[-2.20, -0.46]
Year Three (N = 14,115)	-0.64	[-2.48, 1.21]	-0.68	[-1.64, 0.27]
Overall (N = 17,229)	-0.28	[-1.58, 1.02]	-1.29*	[-2.10, -0.49]
Overall Aggregate	-\$136,677		-\$632,169*	
Other facility				
Year One (N = 12,401)	0.41	[-0.30, 1.13]	0.21	[-0.17, 0.60]
Year Two (N = 14,047)	-0.80	[-1.89, 0.29]	-0.61	[-1.36, 0.13]
Year Three (N = 14,115)	-0.07	[-0.26, 0.12]	-0.13	[-0.26, 0.01]
Overall (N = 17,229)	-0.17	[-0.43, 0.09]	-0.19	[-0.38, 0.01]
Overall Aggregate	-\$83,728		-\$91,271	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that Blueprint for Health changed *overall* expenditures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 6-28** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, there was no statistically significant difference in the *overall* growth of **total Medicare expenditures** among Blueprint for Health beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **specialty physician expenditures** was \$6.6 million lower for Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **laboratory expenditures** was \$1 million lower for Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **imaging expenditures** was approximately \$632,000 lower for Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **outpatient expenditures** was \$10.8 million greater for Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **other non-facility expenditures** was \$1.1 million greater for Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **home health expenditures** was \$7.4 million greater for Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for total, acute-care, post-acute-care, ER visits not leading to hospitalization, primary care physician, and other facility expenditures.

Table 6-29
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures
among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	10,613	82.82*	[35.45, 130.20]	8.92	[-46.99, 64.82]
Year Two	12,129	123.99*	[70.75, 177.22]	82.33*	[29.00, 135.66]
Year Three	12,521	57.31*	[8.93, 105.68]	16.19	[-50.28, 82.66]
Overall	15,801	49.42*	[9.27, 89.58]	4.79	[-43.65, 53.24]
Overall Aggregate		\$19,629,405*		\$1,903,702	
Acute care					
Year One	10,613	20.35*	[4.60, 36.10]	20.81*	[2.40, 39.23]
Year Two	12,129	38.17*	[22.10, 54.24]	52.66*	[34.39, 70.93]
Year Three	12,521	8.77	[-12.28, 29.81]	21.85	[-4.67, 48.37]
Overall	15,801	16.22*	[3.25, 29.19]	24.56*	[8.04, 41.08]
Overall Aggregate		\$6,442,594*		\$9,754,851*	
ER visits not leading to hospitalization					
Year One	10,613	9.97*	[6.65, 13.29]	5.77*	[1.38, 10.15]
Year Two	12,129	3.12	[-0.05, 6.29]	3.96*	[0.17, 7.75]
Year Three	12,521	2.51	[-1.57, 6.58]	1.06	[-3.39, 5.50]
Overall	15,801	2.82	[-0.35, 5.98]	1.47	[-1.46, 4.40]
Overall Aggregate		\$1,118,771		\$583,352	
Specialty physician					
Year One	N/A	N/A	N/A	N/A	N/A
Year Two	N/A	N/A	N/A	N/A	N/A
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		N/A		N/A	
Primary care physician					
Year One	N/A	N/A	N/A	N/A	N/A
Year Two	N/A	N/A	N/A	N/A	N/A
Year Three	N/A	N/A	N/A	N/A	N/A
Overall	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		N/A		N/A	

(continued)

Table 6-29 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Prescription drugs					
Year One	10,613	29.44*	[15.41, 43.47]	5.57	[-14.73, 25.87]
Year Two	12,129	56.28*	[41.05, 71.51]	25.54*	[7.70, 43.37]
Year Three	12,521	75.28*	[55.22, 95.33]	35.11*	[15.24, 54.98]
Overall	15,801	54.15*	[38.36, 69.94]	20.65*	[3.91, 37.38]
Overall Aggregate		\$21,506,249*		\$8,199,934*	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recorded at the 99th percentile.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.
- Because Vermont and New York (the CG for Vermont) operationalize long-term care expenditures differently, a comparison between groups was not feasible; Vermont did not report provider specialty accurately in the claims data, so primary care and specialty expenditures could not be reported.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found greater growth in most expenditure categories for Blueprint for Health beneficiaries, including total Medicaid expenditures, which was driven by acute-care and prescription drug expenditures. Specifically, **Table 6-29** shows the following:

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate total Medicaid expenditures* was \$19.6 million greater for Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate acute-care expenditures* was \$6.4 million greater for Blueprint for

Health beneficiaries compared to beneficiaries assigned to PCMH practices and \$9.8 million greater compared to beneficiaries assigned to non-PCMH practices.

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate prescription drug expenditures* was \$21.5 million greater for Blueprint for Health beneficiaries compared to beneficiaries assigned to PCMH practices and \$8.2 million greater compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for expenditures for ER visits not leading to a hospitalization.

Table 6-30
Vermont: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicare beneficiaries with multiple chronic conditions: Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 12,401)	10.73	[-1.05, 22.50]	14.11*	[5.98, 22.23]
Year Two (N = 14,047)	8.46	[-3.57, 20.49]	7.65	[-0.16, 15.46]
Year Three (N = 14,115)	12.62	[-6.61, 31.85]	17.57*	[4.77, 30.36]
Overall (N = 17,229)	11.25	[-1.42, 23.93]	12.96*	[5.31, 20.60]
Overall Aggregate	1,832		2,110*	
ER visits not leading to hospitalization				
Year One (N = 12,401)	30.21*	[0.43, 59.99]	35.92*	[16.46, 55.37]
Year Two (N = 14,047)	17.45	[-7.41, 42.32]	14.39	[-6.54, 35.32]
Year Three (N = 14,115)	28.96*	[9.33, 48.58]	36.07*	[17.03, 55.11]
Overall (N = 17,229)	25.56*	[3.52, 47.61]	26.64*	[10.24, 43.03]
Overall Aggregate	4,162*		4,337*	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence that Blueprint for Health increased utilization. Specifically, **Table 6-30** shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 2,110 among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 4,162 among Medicare beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and by 4,337 compared to beneficiaries assigned to non-PCMH practices.

Table 6-31
Vermont: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicaid beneficiaries with multiple chronic conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	10,613	0.35	[-0.05, 0.74]	0.64*	[0.18, 1.11]
Year Two	12,129	0.97*	[0.18, 1.77]	1.51*	[0.76, 2.26]
Year Three	12,521	0.31	[-0.23, 0.85]	0.74*	[0.15, 1.32]
Overall	15,801	0.38*	[0.00, 0.76]	0.73*	[0.29, 1.16]
Overall Aggregate		169*		322*	
ER visits not leading to hospitalization					
Year One	10,613	2.55*	[0.98, 4.11]	1.21	[-0.07, 2.50]
Year Two	12,129	0.65	[-1.15, 2.45]	1.92*	[0.93, 2.90]
Year Three	12,521	0.64	[-1.38, 2.67]	0.80	[-0.52, 2.11]
Overall	15,801	0.42	[-1.44, 2.27]	0.63	[-0.38, 1.64]
Overall Aggregate		184		281	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Blueprint for Health participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found some evidence that Blueprint for Health practices increased utilization. Specifically, **Table 6-31** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 169 among Medicaid adult beneficiaries assigned to Blueprint for Health practices compared to beneficiaries assigned to PCMH practices and by 322 compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for ER visits not leading to hospitalization.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Within the PCMH, significant care management and coordination resources may be required to meet the needs of these patients. The Blueprint for Health implemented the Hub and Spoke Initiative to address the needs of Medicaid beneficiaries with behavioral health issues and opioid addictions, and behavioral health specialists also joined the staff of CHTs. There was also a pilot project that involved a psychiatrist rotating among Blueprint for Health practices. Blueprint for Health practices still expressed a need for additional resources to support behavioral health, specifically for patients with substance abuse and mental health issues. These individuals were expected to benefit from the initiatives to improve access to, coordination of, and continuity of care with primary care and behavioral health providers. The Blueprint for Health and the Hub and Spoke Initiative were expected to increase care coordination between PCPs and behavioral health providers for beneficiaries with mental illness and substance use disorders. Improved access and care coordination potentially could have increased use of outpatient behavioral health services and primary care visits, and, in turn, more appropriate use of outpatient care could have led to decreases in rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the demonstration. Using this criterion, 15 percent of the Medicare study sample (demonstration and CG beneficiaries), 6 percent of the adult Medicaid study sample, and 3 percent of the child Medicaid study sample were identified as having a behavioral health condition.

- **Table 6-32** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures

for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.

- **Table 6-32** reports on changes in total Medicaid expenditures, expenditures for acute hospitalizations, expenditures for ER visits, and total Medicaid expenditures for which the primary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 6-34** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 6-35** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 6.6.2** for further discussion of the interpretation of these measures. Because 14 quarters of Medicare data were available for the MAPCP Demonstration period in Vermont, the overall estimate for these measures includes all 14 quarters of data.

Table 6-32
Vermont: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 8,153)	-29.97	[-92.21, 32.27]	-12.55	[-82.39, 57.29]
Year Two (N = 9,745)	-0.18	[-72.75, 72.39]	-40.89	[-87.35, 5.57]
Year Three (N = 10,522)	-9.04	[-102.44, 84.36]	93.37*	[24.43, 162.31]
Overall (N = 12,150)	-29.71	[-80.80, 21.37]	22.65	[-23.96, 69.26]
Overall Aggregate	-\$10,302,448		\$7,853,378	
Acute-care				
Year One (N = 8,153)	-8.35	[-41.11, 24.41]	-11.89	[-63.38, 39.60]
Year Two (N = 9,745)	13.40	[-15.78, 42.57]	3.27	[-26.73, 33.27]
Year Three (N = 10,522)	11.19	[-42.93, 65.32]	13.34	[-20.43, 47.10]
Overall (N = 12,150)	-2.41	[-23.02, 18.20]	5.45	[-17.21, 28.10]
Overall Aggregate	-\$834,925		\$1,888,604	
ER visits not leading to hospitalization				
Year One (N = 8,153)	0.66	[-6.01, 7.32]	1.80	[-3.93, 7.53]
Year Two (N = 9,745)	3.67	[-4.67, 12.00]	-1.59	[-7.84, 4.65]
Year Three (N = 10,522)	-1.65	[-7.57, 4.28]	1.97	[-4.43, 8.37]
Overall (N = 12,150)	-0.91	[-5.72, 3.91]	0.34	[-4.36, 5.03]
Overall Aggregate	-\$314,320		\$116,220	

(continued)

Table 6-32 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 8,153)	-3.28	[-9.55, 2.99]	0.17	[-6.28, 6.62]
Year Two (N = 9,745)	-16.94*	[-31.55, -2.32]	-5.83	[-12.04, 0.38]
Year Three (N = 10,522)	0.00	[-8.85, 8.84]	0.67	[-10.23, 11.58]
Overall (N = 12,150)	-5.04	[-11.14, 1.06]	0.38	[-6.25, 7.01]
Overall Aggregate	-\$1,746,888		\$132,244	
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 8,153)	21.83*	[0.05, 43.61]	-28.28	[-83.95, 27.39]
Year Two (N = 9,745)	26.09	[-0.06, 52.24]	-2.77	[-28.99, 23.44]
Year Three (N = 10,522)	25.13	[-23.88, 74.14]	2.03	[-30.79, 34.84]
Overall (N = 12,150)	17.21	[-5.99, 40.41]	-6.37	[-30.24, 17.50]
Overall Aggregate	\$5,966,956		-\$2,209,988	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

As shown in **Table 6-32**, no statistically significant impacts of the Blueprint for Health were found among Medicare beneficiaries with behavioral health conditions in the measures of total Medicare expenditures, acute-care expenditures, expenditures for ER visits not leading to a hospitalization, total expenditures for services with a principal diagnosis for a behavioral health condition, or total expenditures for services with a secondary diagnosis for a behavioral health condition.

Table 6-33
Vermont: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid expenditures among beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid										
Year One	1413	240.49*	[91.58, 389.41]	297.94*	[173.36, 422.53]	3388	65.72	[-55.15, 186.59]	105.26*	[35.87, 174.65]
Year Two	2075	304.52*	[109.21, 499.83]	374.22*	[230.01, 518.44]	3942	100.56	[-22.92, 224.03]	172.68*	[102.20, 243.15]
Year Three	2158	411.15*	[268.04, 554.26]	402.16*	[271.53, 532.80]	4425	-70.25	[-222.28, 81.79]	18.63	[-51.36, 88.61]
Overall	2472	287.36*	[145.75, 428.97]	331.36*	[216.28, 446.45]	5,663	-28.01	[-162.81, 106.78]	45.60	[-16.73, 107.93]
Overall Aggregate		\$18,995,689*		\$21,904,500*			-\$3,679,594		\$5,989,967	
Acute care										
Year One	1413	-18.71	[-55.66, 18.25]	-12.74	[-40.17, 14.70]	3388	40.44	[-14.58, 95.45]	52.95*	[9.34, 96.55]
Year Two	2075	-4.18	[-26.36, 17.99]	9.81	[-17.06, 36.68]	3942	67.15*	[15.96, 118.34]	89.36*	[45.26, 133.46]
Year Three	2158	5.08	[-23.57, 33.73]	26.84*	[6.33, 47.35]	4425	-24.12	[-85.35, 37.11]	30.96	[-6.80, 68.73]
Overall	2472	-5.58	[-25.39, 14.23]	7.33	[-12.96, 27.62]	5,663	6.79	[-45.55, 59.12]	38.35*	[0.04, 76.67]
Overall Aggregate		-\$368,799		\$484,549			\$891,764		\$5,038,000*	
ER										
Year One	1413	0.52	[-10.33, 11.37]	11.25*	[0.35, 22.16]	3388	4.32	[-3.77, 12.41]	1.68	[-7.67, 11.03]
Year Two	2075	-2.65	[-12.05, 6.76]	16.12*	[6.16, 26.08]	3942	-7.27	[-16.89, 2.35]	2.96	[-6.10, 12.01]
Year Three	2158	-5.81	[-15.72, 4.11]	10.55	[-2.81, 23.91]	4425	-4.26	[-13.35, 4.83]	-7.79	[-20.85, 5.27]
Overall	2472	-4.68	[-12.92, 3.56]	11.24*	[1.46, 21.02]	5,663	-4.98	[-12.74, 2.77]	-4.28	[-11.01, 2.46]
Overall Aggregate		-\$309,230		\$742,913*			-\$654,507		-\$561,548	

(continued)

Table 6-33 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid expenditures among beneficiaries with behavioral health conditions: Fourteen quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition										
Year One	1413	112.03	[-75.44, 299.50]	272.51*	[145.72, 399.30]	3388	112.49*	[27.95, 197.03]	87.96*	[40.66, 135.27]
Year Two	2075	-25.96	[-223.54, 171.63]	204.70*	[101.15, 308.25]	3942	79.96*	[5.39, 154.53]	110.23*	[65.20, 155.25]
Year Three	2158	118.79	[-163.28, 400.86]	360.77*	[221.60, 499.94]	4425	2.61	[-109.30, 114.52]	78.83*	[8.68, 148.98]
Overall	2472	36.50	[-176.31, 249.32]	261.72*	[162.26, 361.18]	5,663	26.68	[-59.70, 113.06]	62.47*	[16.98, 107.96]
Overall Aggregate		\$2,412,949		\$17,300,835*			\$3,504,816		\$8,205,678*	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Blueprint for Health participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children and adults with behavioral health conditions, we found no evidence that Blueprint for Health reduced the growth of any of the examined Medicaid expenditures; rather, it increased the growth of some expenditures. Specifically, **Table 6-33** shows the following:

- Among Medicaid children with behavioral health conditions assigned to Blueprint for Health practices, the growth in *overall aggregate* **total Medicaid expenditures** was \$19 million greater compared to similar beneficiaries in PCMH practices and \$21.9 million greater compared to similar beneficiaries in non-PCMH practices.
- Among Medicaid children with behavioral health conditions assigned to Blueprint for Health practices, the growth in *overall aggregate* **expenditures for ER visits not leading to a hospitalization** was approximately \$743,000 greater compared to similar beneficiaries in non-PCMH practices.
- Among Medicaid children with behavioral health conditions assigned to Blueprint for Health practices, the growth in *overall aggregate* **expenditures for total services with a principal diagnosis of a behavioral health condition** was \$17.3 million greater compared to similar beneficiaries in non-PCMH practices.
- Among Medicaid adults with behavioral health conditions assigned to Blueprint for Health practices, the growth in *overall aggregate* **acute-care expenditures** was \$5 million greater compared to similar beneficiaries in non-PCMH practices.
- Among Medicaid adults with behavioral health conditions assigned to Blueprint for Health practices, the growth in *overall aggregate* **expenditures for total services with a principal diagnosis of a behavioral health condition** was \$8.2 million greater compared to similar beneficiaries in non-PCMH practices.

No statistically significant overall results were observed among Medicaid children with behavioral health conditions assigned to Blueprint for Health practices for the changes in acute-care expenditures compared to beneficiaries assigned to either PCMH or non-PCMH practices. No statistically significant overall results were observed among Medicaid adults with behavioral health conditions assigned to Blueprint for Health practices for the changes in total Medicaid expenditures or expenditures for ER visits not leading to a hospitalization compared to beneficiaries assigned to either PCMH or non-PCMH practices.

Table 6-34
Vermont: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 8,153)	-2.61	[-11.56, 6.34]	5.85*	[0.23, 11.47]
Year Two (N = 9,745)	5.64	[-0.18, 11.46]	5.90	[-0.17, 11.96]
Year Three (N = 10,522)	4.02	[-16.31, 24.36]	8.87*	[1.30, 16.44]
Overall (N = 12,150)	-0.35	[-10.52, 9.82]	6.98*	[1.85, 12.10]
Overall Aggregate	-41		807*	
ER visits not leading to hospitalization				
Year One (N = 8,153)	15.19	[-7.23, 37.60]	33.63*	[9.75, 57.52]
Year Two (N = 9,745)	16.61	[-6.74, 39.96]	19.43*	[0.44, 38.42]
Year Three (N = 10,522)	22.32*	[0.61, 44.04]	32.76*	[11.81, 53.71]
Overall (N = 12,150)	15.40	[-3.78, 34.58]	29.62*	[11.67, 47.57]
Overall Aggregate	1,780		3,423*	
Behavioral health inpatient admissions				
Year One (N = 8,153)	-0.27	[-1.05, 0.52]	-1.43	[-4.93, 2.08]
Year Two (N = 9,745)	-1.39*	[-2.56, -0.23]	-1.01	[-3.79, 1.76]
Year Three (N = 10,522)	-0.46	[-1.28, 0.35]	-1.73	[-6.75, 3.29]
Overall (N = 12,150)	-0.47	[-1.05, 0.11]	-1.11	[-4.23, 2.01]
Overall Aggregate	-54		-129	
Behavioral health ER visits				
Year One (N = 8,153)	0.42	[-3.01, 3.85]	4.37*	[0.57, 8.18]
Year Two (N = 9,745)	2.31	[-3.02, 7.63]	2.63*	[0.04, 5.23]
Year Three (N = 10,522)	4.84	[-1.23, 10.92]	3.17*	[0.06, 6.28]
Overall (N = 12,150)	2.77	[-1.28, 6.83]	3.18*	[0.67, 5.68]
Overall Aggregate	321		367*	

(continued)

Table 6-34 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Blueprint for Health practices vs. CG PCMHs		Blueprint for Health practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits				
Year One (N = 8,153)	74.46	[-17.99, 166.92]	65.81*	[0.31, 131.32]
Year Two (N = 9,745)	37.38	[-46.08, 120.84]	18.57	[-29.71, 66.85]
Year Three (N = 10,522)	50.69	[-59.87, 161.25]	65.44	[-3.99, 134.87]
Overall (N = 12,150)	53.15	[-41.56, 147.85]	52.58	[-3.84, 108.99]
Overall Aggregate	6,142		6,077	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters. Quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with behavioral health conditions, there was no evidence that Blueprint for Health reduced the rates of healthcare utilization. Specifically, **Table 6-34** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, **all-cause admissions** increased by an overall aggregate of 807 visits among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, **ER visits not leading to hospitalization** increased by an overall aggregate of 3,423 visits among

Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.

- Among Medicare beneficiaries with behavioral health conditions, **behavioral health ER visits** increased by an overall aggregate of 367 visits among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.

No statistically significant impacts of Blueprint for Health were found among Medicare beneficiaries with behavioral health conditions for behavioral health inpatient admissions and behavioral health outpatient visits.

Table 6-35
Vermont: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions										
Year One	1,413	0.06	[-1.46, 1.58]	-0.17	[-1.22, 0.89]	3,388	1.17*	[0.03, 2.30]	1.68*	[0.41, 2.95]
Year Two	2,075	0.64	[-0.50, 1.77]	0.71	[-0.32, 1.75]	3,942	1.59*	[0.37, 2.81]	2.50*	[0.76, 4.24]
Year Three	2,158	0.32	[-1.02, 1.66]	0.29	[-0.53, 1.12]	4,425	-0.28	[-1.59, 1.02]	1.35*	[0.08, 2.62]
Overall Overall Aggregate	2,472	0.45 99	[-0.67, 1.57]	0.29 65	[-0.43, 1.01]	5,663	0.42 184	[-0.37, 1.21]	1.27* 556*	[0.10, 2.44]
ER visits not leading to hospitalization										
Year One	1,413	2.56	[-0.25, 5.36]	3.16	[-0.60, 6.93]	3,388	2.52	[-0.74, 5.77]	-0.32	[-2.38, 1.73]
Year Two	2,075	2.36	[-1.20, 5.91]	3.76*	[0.48, 7.03]	3,942	-0.63	[-3.32, 2.07]	2.22	[-0.38, 4.83]
Year Three	2,158	2.26	[-1.62, 6.14]	4.19*	[0.92, 7.46]	4,425	-0.14	[-3.81, 3.53]	-0.06	[-2.02, 1.90]
Overall Overall Aggregate	2,472	0.99 219	[-2.03, 4.02]	3.51* 774*	[0.77, 6.25]	5,663	-0.45 -199	[-2.94, 2.04]	-0.52 -228	[-2.29, 1.25]

(continued)

Table 6-35 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health inpatient admissions										
Year One	1,413	DNC	DNC	DNC	DNC	3,388	DNC	DNC	DNC	DNC
Year Two	2,075	DNC	DNC	DNC	DNC	3,942	DNC	DNC	DNC	DNC
Year Three	2,158	DNC	DNC	DNC	DNC	4,425	DNC	DNC	DNC	DNC
Overall Overall Aggregate	2,472	DNC DNC	DNC	DNC DNC	DNC	5,663	DNC DNC	DNC	DNC DNC	DNC
Behavioral health ER visits										
Year One	1,413	0.90	[-1.00, 2.79]	1.22	[-0.63, 3.06]	3,388	0.62	[-0.53, 1.78]	0.21	[-0.60, 1.01]
Year Two	2,075	-0.31	[-2.89, 2.27]	1.75	[-0.33, 3.84]	3,942	0.01	[-0.83, 0.84]	0.38	[-0.87, 1.62]
Year Three	2,158	0.15	[-1.58, 1.89]	0.99	[-0.46, 2.45]	4,425	0.19	[-0.58, 0.95]	-1.54	[-3.09, 0.01]
Overall Overall Aggregate	2,472	-0.18 -39	[-1.89, 1.54]	1.22 269	[-0.32, 2.76]	5,663	-0.03 -12	[-0.60, 0.55]	-1.02 -445	[-2.20, 0.16]

(continued)

Table 6-35 (continued)
Vermont: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Fourteen quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs		N	Blueprint for Health vs. CG PCMHs		Blueprint for Health vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits										
Year One	1,413	-2.47	[-10.63, 5.68]	2.10	[-2.74, 6.94]	3,388	3.81	[-1.94, 9.57]	-5.25	[-12.27, 1.77]
Year Two	2,075	-3.76	[-10.48, 2.96]	0.51	[-4.41, 5.44]	3,942	1.27	[-3.23, 5.77]	-7.11*	[-13.96, -0.27]
Year Three	2,158	-0.09	[-7.15, 6.97]	0.90	[-6.66, 8.46]	4,425	-8.45*	[-13.84, -3.06]	-10.63*	[-18.04, -3.22]
Overall	2,472	-0.86	[-6.62, 4.91]	1.23	[-4.18, 6.64]	5,663	-3.18	[-7.67, 1.32]	-7.92*	[-14.46, -1.38]
Overall Aggregate		-188		271			-1,391		-3,467*	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Blueprint for Health participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among Blueprint for Health beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; DNC = regression model did not converge; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children and adults with behavioral health conditions, there was no evidence that Blueprint for Health reduced the rates of healthcare utilization, with the exception of behavioral health outpatient visits among adults. However, this result was inconsistent across CGs. Specifically, **Table 6-35** shows the following:

- Among Medicaid children with behavioral health conditions, the *overall aggregate* number of beneficiaries with an **ER visit not leading to hospitalization** increased by 774 among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults with behavioral health conditions, the *overall aggregate* number of beneficiaries with an **all-cause inpatient admission** increased by 556 among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults with behavioral health conditions, the *overall aggregate* number of beneficiaries with a **behavioral health outpatient visits** decreased by 3,467 among Blueprint for Health beneficiaries compared to beneficiaries assigned to non-PCMH practices.

No statistically significant impacts of Blueprint for Health were found among Medicaid children with behavioral health conditions for all-cause inpatient admissions, behavioral health ER visits, and behavioral health outpatient visits. No statistically significant impacts of Blueprint for Health were found among Medicaid adults with behavioral health conditions for ER visit not leading to hospitalization, or behavioral health ER visits.

6.7.3 Discussion of Special Populations

The Blueprint for Health intentionally emphasized certain subpopulations by including special initiatives for them. Specific interventions were targeted to individuals with multiple chronic conditions or who otherwise were identified as high risk. The Hub and Spoke Initiative provided local care management and coordination for individuals with behavioral health and substance abuse issues. The SASH program provided unique opportunities for Medicare beneficiaries in supported housing.

Although Vermont had a special focus on individuals with multiple chronic conditions, the analysis of claims data suggests that these efforts were not very effective in reducing costs or utilization. Among Medicare beneficiaries with multiple chronic conditions, there was a decrease in total Medicare expenditures in Year Two of \$86.68 PBPM, but there was an increase in Year Three of \$120.90 PBPM. Overall, there was no significant change in expenditures for Medicare beneficiaries with multiple chronic conditions. Total Medicaid expenditures for adult Medicaid beneficiaries with multiple chronic conditions increased during the first 14 quarters of the MAPCP Demonstration. These overall increases likely resulted from the increases in 30-day unplanned readmissions, acute-care expenditures, prescription drug expenditures, and all-cause admissions.

The Hub and Spoke Initiative was implemented to increase care coordination specifically for beneficiaries with behavioral and substance abuse issues in an effort to decrease costs of care by lowering their rates of hospitalizations and ER visits. Although there was no overall change in the total Medicare expenditures for Medicare beneficiaries with behavioral health conditions, there was a sharp increase in expenditures during Year Three, which was also the time period during which CHTs increased their use of panel management to identify target patients, such as those with behavioral health conditions. Furthermore, Year Three was also when the Hub and Spoke Initiative went into effect widely. There were overall increases in all-cause inpatient admissions, all-cause ER visits not leading to hospitalization, and behavioral health ER visits for Medicare beneficiaries with behavioral health conditions. Relative to the PCMH and non-PCMH CGs, child Medicaid beneficiaries with behavioral health conditions increased their total Medicaid expenditures during the first 14 quarters of the MAPCP Demonstration by \$19 million and \$21.9 million, respectively. Increased expenditures on all-cause ER visits (relative to non-PCMHs) and services with a principal diagnosis of a behavioral health condition were factors in the increased total Medicaid expenditures by children. Adult Medicaid beneficiaries with behavioral health conditions had increases in expenditures on acute care and services with a principal diagnosis of a behavioral health condition relative to non-PCMH practices.

Initially, there were favorable results for SASH participants. In Year One, the total Medicare expenditures of SASH participants decreased by nearly \$90 PBPM relative to both CGs. This is greater than the non-significant decreases of around \$26 PBPM for all Medicare beneficiaries during Year One. During Year Three, SASH participants had increases in total Medicare expenditures by more than \$100 PBPM. This shift in results may be explained by extreme growth of the program during the MAPCP Demonstration and the growing differences between available resources and those necessary to meet the needs of the larger and more rural SASH population. During the focus groups, participants who had used SASH services often mentioned that the provided services were not significant and often just involved referring the patients to other services. If, as SASH participation grew and staff resources became stretched thin, there was a significant volume of referrals to medical services covered by Medicare, then a possible result was an increase in Medicare expenditures. Among SASH participants in Year Three, there were significant increases in ER expenditures (and number of visits).

Although there was no focus on other special populations, there were significant changes in the total expenditures for some. In particular, rural Medicare beneficiaries decreased their total Medicare expenditures during the MAPCP Demonstration. Among Medicaid beneficiaries, however, there were increases in expenditures for those with asthma (children and adults).

6.8 Discussion of Vermont's MAPCP Demonstration

The Blueprint for Health was regarded as a well-established initiative in Vermont and was noted for its success in effectively integrating CHTs and SASH teams into participating practices to provide care coordination and management services. The PCMH component of the Blueprint for Health began in 2007 and has served as the foundation for health care reform in Vermont. Others health care transformations such as ACOs and the SIM Model Test award built upon the Blueprint for Health.

During the Blueprint for Health, care management was a key strategy for Vermont in meeting the goals of the demonstration: impacting health care transformation, improving quality of care and health outcomes, increasing coordination of care, decreasing health care expenditures, and leading to more effective utilization of health care services. The major mechanism through which Vermont implemented care management in the Blueprint for Health was through CHTs and SASH teams. CHTs worked with practices to provide health education programs, refer patients to community wellness programs, follow up with patients after hospital discharges, reconcile medications, coordinate patient care, help with population health management and patients' chronic disease management, and track ER use and readmission rates. For Medicare beneficiaries living in supported housing and their surrounding communities, SASH teams extended the work of CHTs by providing these Medicare beneficiaries with community-based support and coordination services in their homes.

Throughout the first 3 years of the demonstration, CHT and SASH services spread to all 14 HSAs in the state, and participating practices formed stronger relationships with CHTs and SASH teams and more effectively integrated them into the provision of care. By Year Three, program administrators believed that CHTs and SASH teams had become the most visible and beneficial aspect of the demonstration.

These CHT and SASH team efforts, along with practice efforts to increase coordination with other providers, included using hospital discharge reports or accessing hospital EHRs and likely contributed to a decrease in total expenditures for Medicare beneficiaries relative to CGs (**Table 6-14**). These overall savings were driven particularly by lower expenditures on post-acute-care and specialty physicians, but also on laboratory and imaging services. Similar reductions in total expenditures were not observed for child and adult Medicaid beneficiaries.

In addition, Medicare beneficiaries experienced an increase in the continuity of their care and had fewer medical and surgical specialist visits. During focus group discussions, participants mentioned that it was not uncommon for their PCP to know within a day or two of their hospitalization and to call them after discharge or visit them in the hospital and for their records to be transferred to their provider. Focus group participants also noted the improvement in coordination between their PCPs and specialist.

In addition to the above care coordination efforts, practices attempted to improve the efficiency in health care utilization by expanding patient access to primary care by increasing the availability of same-day appointments, expanding after-hours access by offering 24-hour-a-day, 7-day-a-week availability by phone, extending hours during weekdays and weekends, and launching online patient portals. Despite practices' efforts, ER visits by Medicare and child Medicaid beneficiaries increased during the MAPCP Demonstration, and a high percentage of PCMH CAHPS survey respondents indicated they could not get same-day appointments and access their PCPs on evenings, weekends, or holidays. Three factors likely played a role in these findings. First, during the MAPCP Demonstration, there was an increase in the number of urgent care centers in Vermont. These facilities were licensed and bill as ERs. Second, there may have been insufficient incentives for PCMHs or a shortage of primary care physicians that did not allow some PCMHs to increase access enough that they did not have to refer patients to ERs. Third, CHTs worked with only a minority of a practice's patients—those identified as needing the services.

We also found that Vermont did not have much success in improving processes of care for diabetes and asthma patients or health outcomes, although there was a significant increase in appropriate use of antidepressant medication for adult Medicaid beneficiaries. These claims-based findings are consistent with provider survey results that showed a lower percentage of providers in Vermont engaged in systematic quality improvement activities than the average for the eight MAPCP Demonstration states, suggesting that the Blueprint for Health's focus on quality improvement did not translate to the practice level.

Mental health services were in very high demand in some locations, but we heard from multiple sources that there were not enough mental health professionals available to meet these needs. The Blueprint for Health addressed this need by having a special focus on patients with behavioral health and substance abuse issues. The Hub and Spoke Initiative was implemented to increase care coordination for these individuals in an effort to decrease costs of care by lowering their rates of hospitalization and ER visits. Behavioral health specialists also joined the staff of CHTs, and a pilot project involved a psychiatrist rotating among Blueprint for Health practices. Despite this focus, we did not observe an overall impact on total Medicare expenditures for Medicare beneficiaries with behavioral health conditions. However, there was a sharp increase in expenditures during Year Three, which was also the time period during which CHTs increased their use of panel management to identify target patients, such as those with behavioral health conditions. Furthermore, Year Three was also when the Hub and Spoke Initiative went into effect widely. There were overall increases in all-cause inpatient admissions, all-cause ER visits not leading to hospitalization, and behavioral health ER visits for this population. Relative to the non-PCMH CG, child and adult Medicaid beneficiaries with behavioral health conditions increased their total Medicaid expenditures during the first 14 quarters of the MAPCP Demonstration. These increases are not surprising, however. As the backlog of individuals in need of behavioral health and substance abuse services were able to receive such services, increases were observed to meet the demand.

During the demonstration, Vermont faced challenges and learned lessons from these challenges. One of the biggest challenges was the lack of a functioning health IT platform to support the ability of practices, CHTs, and SASH teams to receive reliable data to manage their patients. At the beginning of the demonstration, the health IT infrastructure centered on DocSite, a Web-based clinical registry accessible to providers statewide. DocSite was viewed as unreliable, had connectivity issues, and was incompatible with many EHRs. To address these problems, Vermont built additional health IT infrastructure by introducing two new tools: VITL Access and the Blueprint for Health Web Portal. VITL Access was a secure portal allowing practices to query aggregated patient information from various providers and health systems obtained through the Vermont HIE. The Blueprint for Health Web Portal was another provider portal allowing practices and CHTs to upload information, for example, to attest to patient demographics in their panel and to update information on their providers and staff. The early issues with DocSite may have been discouraging for practices and led to their slow adoption of VITL Access. The lack of reliable health IT infrastructure prevented practices from having data that would help to identify high-risk patients in need of additional services and better manage the health of their populations, and may have contributed to some of the findings mentioned above.

Another challenge related to data access was the consent to view policy for obtaining access to patient integrated health records. Interviewees were concerned that this would limit use

of the health information system and providers' ability to get comprehensive health information for their patients. This was even more critical with the integration of behavioral health and primary care given federal patient confidentiality requirements under 42 CFR Part 2 related to sharing data related to behavioral health and substance abuse. As with the health IT infrastructure issues, care coordination efforts were likely hampered by these technology challenges.

Vermont required all commercial payers in the state, some self-insured employers, Medicaid, and Medicare to participate in the Blueprint for Health. Financial support of multiple payers in health care reform initiatives such as the Blueprint for Health was seen as critical to practices transforming. A state official felt that initiatives needed "a critical mass of payers to make [practice transformation] financially viable" for practices. Medicare's decision to join the Blueprint for Health was a great boost for the PCMH initiative. Indeed, Vermont scored higher than the average across the eight MAPCP Demonstration states on 7 of the 23 PCMH activities in the provider survey.

Although all-payer participation is an important step in practices' ability to transform and operate as PCMHs, it is not sufficient for the sustainability of PCMHs. During the 14 quarters of the MAPCP Demonstration, the Blueprint for Health maintained the same payment methodology, which dated back to 2008. Payments became inadequate for supporting practices' PCMH infrastructure or CHTs' and the SASH program's operational costs. During Year Three, the insufficiency of payments to maintain the Blueprint for Health requirements and services became more apparent. Without an increase in their PMPM since 2008, when payers were required to participate financially in the Blueprint for Health, some practices considered leaving the initiative. To address insufficient payments for the SASH program, consideration was given to decreasing the current panel size of 100 to 70 for rural areas and 80 in other areas. Vermont realized that payment methodology needed to evolve over time to meet the needs of the initiative's participants. Vermont began considering (and, in 2015, eventually implemented) changes to its payment methodology that would increase the PMPM payments to practices, be performance-based, and adjust payer contributions for CHTs to align with each payer's market share.

In sum, the MAPCP Demonstration experienced some success among its Medicare beneficiaries. The Blueprint for Health demonstrated a successful use of support teams to provide care coordination at primary care practices. The work of CHTs and SASH teams resulted in an increase in care coordination, as described by focus group participants and observed in the quantitative analysis for Medicare beneficiaries—greater continuity of care and fewer specialist visits. These care coordination efforts likely drove the demonstration's decrease in total Medicare expenditures through lower expenditures on post-acute-care and specialty physicians. Greater access to care likely would have further increased the savings experienced by the Blueprint for Health during the demonstration. Patients mentioned their inability to access their providers outside of normal hours led them to seek care at ERs and urgent care centers, which billed as ERs. However, even without these additional potential savings, the MAPCP Demonstration achieved its budget neutrality goal among Medicare beneficiaries and saved Medicare at least \$52 million.

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CHAPTER 7 NORTH CAROLINA

Overview of North Carolina Evaluation Results

The MAPCP Demonstration in North Carolina built on the Community Care of North Carolina (CCNC), a central network that oversees the operations of 14 nonprofit, community-based networks of health care providers. These networks seek to improve quality and promote appropriate utilization of resources to manage health care costs. CCNC supports primary care practices and hospitals by providing care coordination, disease and care management, and quality improvement resources. As part of MAPCP Demonstration, North Carolina established a multi-payer demonstration that included Medicaid, Medicare, the State Employee Health Plan, and Blue Cross Blue Shield of North Carolina (BCBSNC). The demonstration launched in October 2011, when BCBSNC and Medicare joined Medicaid in making payments to practices and four regional CCNC networks in seven rural counties across the state.

The following are some of the key findings from the MAPCP Demonstration in North Carolina:

- Approximately 33,000 Medicare beneficiaries and more than 20,000 Medicaid beneficiaries participated in CCNC during the MAPCP Demonstration. In December 2014, the North Carolina MAPCP Demonstration had 161 participating providers at 40 practices.
- CMS paid out nearly \$6.6 million in care management fees over the course of the demonstration to North Carolina MAPCP Demonstration practices and to the four networks to support the infrastructure and services provided as part of the demonstration.
- CCNC resulted in greater expenditures for Medicare participants, although these findings were not statistically significant.
- Although there were no overall savings observed, one of the CCNC networks (Network 2) did produce Medicare savings ranging from \$7.8 million to \$8.8 million, depending on the comparison group (CG). These favorable findings were due largely to savings in acute-care and physician expenditures. Reasons for this network's success include having an integrated health system that conducted concerted quality improvement activities throughout the demonstration period and physicians who were proficient in using the system's electronic health record (EHR), which was the basis for all quality improvement activities and related communications.
- There was little evidence that the North Carolina MAPCP Demonstration reduced rates of hospital admissions and emergency room (ER) visits and associated expenditures for Medicare beneficiaries. Findings suggested small increases in the rates of all-cause admissions and ER visits for Medicare beneficiaries compared to the CG, although the findings were not statistically significant. This was consistent

with reports from beneficiaries that they had to seek care after hours in the ER because their providers were often unavailable on nights and weekends. Some network and practice staff also reported little or no success in improving utilization patterns through their patient-centered medical home (PCMH) activities because of difficulties in altering patient behavior and in using health information technology (IT) to successfully identify patients with a history of inappropriate utilization who may benefit from more intensive care management.¹

- In the third year of the North Carolina MAPCP Demonstration, practices held diabetes management trainings with patients and staff and engaged in other efforts to improve health care quality. Some diabetes-related measures improved over time for Medicare beneficiaries with diabetes, although the improvements generally were not statistically significant. However, the trend toward improvement may suggest that patients in need of evidence-based care were beginning to be appropriately identified for additional care management services.
- There were few changes in access to care processes and procedures during the North Carolina MAPCP Demonstration, as practices felt they had already been providing expanded access to their patients prior to the demonstration. Increasing access to specialty care was an initiative under North Carolina's MAPCP Demonstration, however, with some practices using the MAPCP Demonstration fees to bring specialists into their rural practices areas once or twice a week. There was mixed evidence that these efforts resulted in improved access to specialty care: Although the rate of surgical specialist visits increased for Medicare beneficiaries, the rate of medical specialist visits declined.
- Medicare beneficiaries rated their providers highly in the area of self-management support and reported receiving advice from their providers on disease management and improving health behaviors, although that positive feedback was not universal.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to North Carolina's multi-payer initiative, the North Carolina MAPCP Demonstration, which simultaneously added Medicare and BCBSNC as payers to a pre-existing Medicaid program to implement the MAPCP Demonstration. We report findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to North Carolina in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;

¹ Medicaid claims data were available only for the first year and a half of the MAPCP Demonstration, limiting the conclusions that could be made regarding the impact of the MAPCP Demonstration on claims-based measures of access, quality, utilization, and expenditures for the Medicaid beneficiaries.

- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents, such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from the North Carolina MAPCP Demonstration practices more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey among Medicare FFS beneficiaries. Ten focus groups were held in North Carolina: five in Whiteville and five in Jefferson in September 2014. A total of 57 individuals participated in these discussions. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Group size varied based on the type of participants. Focus groups with dually eligible beneficiaries were smaller because of difficulties in recruiting; these were attended by two or three participants. Focus groups with Medicaid, low- and high-risk Medicare, and Medicare caregivers were composed of four to eight participants. See *Appendix O* for more details about focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to MAPCP Demonstration practices in North Carolina. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In North Carolina, a 43.3 percent response rate was achieved with a total of 634 completed surveys, both of which exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we fielded an online survey among all practices participating in the MAPCP Demonstration, including the 40 North Carolina practices participating in the demonstration at the time of our survey. A total of 26 providers from 14 of the 40 North Carolina practices completed the survey.²

This chapter is organized by major evaluation domains. *Section 7.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in the North Carolina MAPCP Demonstration. *Section 7.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (*Section 7.3*); access to care and coordination of care (*Section 7.4*); beneficiary experience with care (*Section 7.5*); effectiveness as measured

² Eighteen practices that served Medicaid patients only were not part of this survey.

by health care utilization and expenditures (*Section 7.6*); and special populations (*Section 7.7*). The chapter concludes with a discussion of the findings (*Section 7.8*).

7.1 State Implementation

In this section, we present findings related to the implementation of the North Carolina MAPCP Demonstration and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the MAPCP Demonstration?
- Were any major implementation issues encountered during the evaluation period, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in *Section 7.1.1*, which describes the major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by North Carolina MAPCP Demonstration staff; monthly calls between North Carolina MAPCP Demonstration staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. *Section 7.1.2* presents a logic model that reflects our understanding of the link between specific elements of the North Carolina MAPCP Demonstration and expected changes in outcomes. *Section 7.1.3* presents key findings gathered from the site visits regarding the implementation experience of state officials, payers, and providers during the evaluation period. *Section 7.1.4* concludes the State Implementation section with lessons learned.

7.1.1 North Carolina State Profile as of December 2014

North Carolina built on its regional Community Care Networks and Medicaid PCMH program to implement the MAPCP Demonstration. These regional networks evolved from the state Medicaid program's primary care case management (PCCM) program, which was designed to support primary care practices through per member per month (PMPM) fees paid to networks and practices that agreed to coordinate care and support population health efforts. North Carolina's PCCM programs began in 1983, when the North Carolina Foundation for Advanced Health Programs partnered with the state to create the Wilson County Health Plan. In 1991, North Carolina received a Medicaid 1915(b) waiver to expand the PCCM model statewide, which eventually led to the creation of CCNC.

In partnership with the state, CCNC served as the organization overseeing operations for 14 nonprofit, community-based networks, four of which served the participating MAPCP Demonstration counties. Characteristics of the four CCNC networks participating in the MAPCP Demonstration are shown in *Table 7-1*. These networks sought to improve quality and promote appropriate utilization of resources to manage health care costs. CCNC supported primary care practices and hospitals through provision of care coordination, disease and care management, and clinical pharmacy and quality improvement resources. A particular emphasis was placed on

managing transitions across care settings and analyzing data to identify patients who would benefit most from care management. It also included interventions specifically targeting individuals with chronic conditions (e.g., diabetes, asthma, hypertension, and congestive heart failure [CHF]).

Table 7-1
North Carolina: Characteristics of CCNC networks participating in the MAPCP Demonstration

Networks	Network 1: AccessCare	Network 2: Community Care of Western North Carolina	Network 3: Community Care of the Lower Cape Fear	Network 4: Northern Piedmont Community Care
Year established ¹	1998	1998	2003	N/A
Number of counties covered ¹	23	8	6	6
List of counties with practices enrolled in MAPCP Demonstration	Avery Ashe Watauga	Transylvania	Bladen Columbus	Granville
Number of primary care practices ¹	280	82	154	55
Number of primary care practices ever enrolled in MAPCP Demonstration as of Sept. 30, 2013 ¹	20	4	26	6
Number of hospitals ¹	29	9	7	10
Number of care managers ¹	89.8	49.3	38	32
Ratio of care managers to practices in Network	0.32	0.60	0.25	0.58

CCNC = Community Care of North Carolina; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not available.

¹ SOURCE: CCNC (<https://www.communitycarenc.org/our-networks/>) accessed on July 24, 2015. Data from 2013.

As part of the MAPCP Demonstration, North Carolina established a multi-payer initiative that included Medicaid, Medicare, the State Employee Health Plan, and BCBSNC. North Carolina's initiative launched in October 2011, when BCBSNC and Medicare joined Medicaid in making additional payments to primary care practices in seven rural counties across the state and four regional CCNC networks. The State Employee Health Plan, administered by BCBSNC, began making payments in January 2012. CMS invited North Carolina's payers to extend the state initiative through December 2016, but both BCBSNC and the State Employee Health Plan terminated their participation at the end of 2014. Because the state no longer met the MAPCP Demonstration's multi-payer requirement with the withdrawal of BCBSNC and the State Employee Health Plan, Medicare ceased participating in the state initiative on December 31, 2014, as originally planned. CCNC has continued its program for Medicaid beneficiaries only.

State environment. North Carolina's initiative was a public/private partnership between the North Carolina Department of Health and Human Services (NCDHHS) Office of Rural Health and Community Care (ORHCC), which provided executive leadership, and CCNC, which provided day-to-day operations management. CCNC implemented the state initiative through a

memorandum of agreement with the state agency. A multistakeholder steering committee consisting of state and participating payer leaders facilitated decision making for the state initiative.

North Carolina participated in one other initiative operating concurrently with the MAPCP Demonstration that may have affected outcomes for participants in the demonstration or CG population. In May 2012, North Carolina received approval of a Section 2703 Health Home State Plan Amendment (SPA), effective retroactively to October 1, 2011. The health home program relied on CCNC infrastructure to deliver enhanced care to eligible Medicaid enrollees with chronic physical health conditions. Although the state's enhanced federal match expired on October 1, 2013, the SPA remained in effect.

North Carolina also experienced major political changes at the beginning of 2013 with a new governor, the first Republican in 20 years. That change resulted in significant staff changes at both cabinet and department levels but did not have a direct effect on the demonstration. State leadership was more stable in 2014, although a new Medicaid director was appointed in April 2014.

Demonstration scope. Participation in the North Carolina MAPCP Demonstration was limited to practices willing to pursue PCMH recognition in seven rural counties across the state: Ashe, Avery, Bladen, Columbus, Granville, Transylvania, and Watauga. In October 2011, payers participating in the North Carolina MAPCP Demonstration began payments to participating practices. A fourth payer, the State Employee Health Plan, joined in January 2012.

Table 7-2 shows participation in the North Carolina MAPCP Demonstration at the end of Years One, Two, and Three of the demonstration and the end of the evaluation period (December 31, 2014). Originally, the state hoped to have 61 practices participate in the MAPCP Demonstration. Participating practices with attributed Medicare FFS beneficiaries numbered 43 at the end of Year One (September 30, 2012); 42 at the end of Year Two (September 30, 2013); and 40 at the end of Year Three (September 30, 2014) and the end of the evaluation period (December 31, 2014)—a decrease of 7 percent overall. The number of providers at these practices increased by 17 percent over this period, from 138 to 161. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, but pediatric practices participating in the MAPCP Demonstration and receiving Medicaid payments were included for each year. As a result, the number of Medicaid participating practices was higher than the number of Medicare participating practices.

Table 7-2
North Carolina: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants participating in the North Carolina MAPCP Demonstration

Participating entities	Number as of September 30, 2012	Number as of September 30, 2013	Number as of September 30, 2014	Number as of December 31, 2014
Medicare				
MAPCP Demonstration practices ¹	43	42	40	40
Participating providers ¹	138	150	161	161
Medicare FFS beneficiaries ²	26,438	30,482	33,154	33,393
Medicaid				
MAPCP Demonstration practices ³	58	58	—	—
Medicaid beneficiaries ³	19,200	20,411	—	—
All-payer				
MAPCP Demonstration practices ⁴	48	49	47	—
Participating providers ⁴	171	166	163	—
All-payer participants ⁴	84,506	83,061	81,925	83,353

NOTES:

- The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a North Carolina MAPCP Demonstration practice and participated in the North Carolina MAPCP Demonstration for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent-to-treat design of our evaluation. The number of all-payer participants also represents the number of individuals who were ever attributed to a NC MAPCP Demonstration practice as reported by the state.
- For Medicare, MAPCP Demonstration practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- For Medicaid, MAPCP Demonstration practices included only those practices with attributed Medicaid beneficiaries through March 2013. Because of a change in its Medicaid Management Information System (MMIS) in 2013, North Carolina was able to provide Medicaid enrollment and claims data only through March 2013. North Carolina did not provide a count of the unique number of participating MAPCP Demonstration Medicaid providers.
- The all-payer numbers are derived from the state, using its own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; — = data not available.

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³North Carolina Medicaid enrollment and claims files (see Chapter 1 for more detail about these files); ⁴North Carolina Quarterly Reports to CMS.

The cumulative number of Medicare FFS beneficiaries ever participating in the demonstration for 3 or more months increased by 26 percent over this period, from 26,438 to

33,393. The evaluation period for North Carolina's Medicaid analysis goes only through March 2013; because of a change in its Medicaid Management Information System (MMIS) in 2013, the state was able to provide Medicaid enrollment and claims data only through March 2013. The cumulative number of Medicaid beneficiaries who ever participated increased by 6 percent from the end of the first year through the end of the evaluation period (March 2013).

The state originally projected that 125,106 individuals would participate in the North Carolina MAPCP Demonstration across all payers by the end of the demonstration. The number of all-payer participants was 84,506 after the first year of the MAPCP Demonstration and decreased by 1,153, or just over 1 percent, falling short of the state's projections by the end of the demonstration.

Four payers participated in the North Carolina MAPCP Demonstration: Medicare FFS (24% of total participants as of September 2014), Medicaid (50%), BCBSNC (13%), and the State Employee Health Plan (13%). BCBSNC participated for its commercial line of business only, and the State Employee Health Plan, which was administered by BCBSNC, participated as a self-insured purchaser.

Table 7-3 displays the characteristics of the practices that participated in the North Carolina MAPCP Demonstration as of the end of the evaluation period (December 31, 2014). There were 40 participating practices with an average of four providers per practice. These included office-based practices (70%), rural health clinics (RHCs) (20%), and critical access hospitals (CAHs) (10%). Most practices were located in rural areas (68%), with the remainder in micropolitan areas (32%). As of the end of the Medicaid evaluation period (March 31, 2013), there were 58 participating practices with attributed Medicaid enrollees. Most of the Medicare practices were also Medicaid practices; the higher number of Medicaid practices indicates that there were practices with Medicaid enrollees but few or no Medicare beneficiaries. The majority of these Medicaid-only practices were pediatric practices. Because of the additional pediatric practices, a higher percentage of Medicaid practices were office-based as compared to the Medicare practices.

Table 7-3
North Carolina: Characteristics of practices participating in the MAPCP Demonstration as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	40	58
Number of providers (total)	161	—
Number of providers per practice (average)	4	—
Practice type (%)		
Office-based practice	70	78
FQHC	0	0
CAH	10	3
RHC	20	19
Practice location type (%)		
Metropolitan	0	—
Micropolitan	32	—
Rural	68	—

NOTES:

- MAPCP Demonstration practices included only those practices with attributed Medicaid beneficiaries through March 2013. Because of a change in its MMIS in 2013, North Carolina was able to provide Medicaid enrollment and claims data only through March 2013.
- CCNC did not provide a count of the unique number of participating MAPCP Demonstration Medicaid providers.
- Practice location type could not be determined using Medicaid claims files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; MMIS = Medicaid management information system; RHC = rural health clinic.

SOURCE: ¹ARC Q14 MAPCP Demonstration Provider File; ²North Carolina Medicaid enrollment and claims files. (See Chapter 1 for more details about this file.)

In **Table 7-4**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating MAPCP Demonstration practices during the evaluation period (October 1, 2011, to December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration are not included in our evaluation or in this analysis. Of beneficiaries assigned to MAPCP Demonstration practices during the evaluation period, one-fifth (20%) were under the age of 65, half (50%) were between the ages of 65 and 75, and almost one-quarter were between the ages of 76 and 85 (23%), with a mean beneficiary age of 70 years. Eighty-one percent of beneficiaries were White, 2 percent were urban dwelling, and 58 percent were female. Twenty-six percent were dually eligible for Medicare and Medicaid, and 30 percent were originally eligible for Medicare because of a disability. One percent of beneficiaries had end-stage renal disease (ESRD), and less than 1 percent resided in a nursing home during the year before assignment to a demonstration practice.

Table 7-4
Demographic and health status characteristics of Medicare FFS beneficiaries participating
in the North Carolina MAPCP Demonstration from October 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	33,393
Demographic characteristics	
Age < 65 (%)	20
Age 65–75 (%)	50
Age 76–85 (%)	23
Age > 85 (%)	7
Mean age	70
White (%)	81
Urban place of residence (%)	2
Female (%)	58
Dually eligible beneficiaries (%)	26
Disabled (%)	30
ESRD (%)	1
Institutionalized (%)	0
Health status	
Mean HCC score groups	1.02
Low risk (< 0.48) (%)	25
Medium risk (0.48–1.25) (%)	52
High risk (> 1.25) (%)	23
Mean Charlson Comorbidity Index score	0.79
Low Charlson Comorbidity Index score (= 0) (%)	63
Medium Charlson Comorbidity Index score (≤ 1) (%)	19
High Charlson Comorbidity Index score (> 1) (%)	18
Chronic conditions (%)	
Essential hypertension	38
Lipid metabolism disorders	20
Diabetes without complications	18
Coronary artery disease	11
Other respiratory disease	10
Cardiac dysrhythmias and conduction disorders	10
Disorders of joint	8
Acute and chronic renal disease	7
Anemia	7
Hypothyroidism	6
Heart failure	5
Chest pain	5
Dizziness, syncope, and convulsions	5
Urinary tract infection	5
Malaise and fatigue (including chronic fatigue syndrome)	4
Diabetes with complications	3

(continued)

Table 7-4 (continued)
Demographic and health status characteristics of Medicare FFS beneficiaries participating
in the North Carolina MAPCP Demonstration from October 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	
Renal failure	3
Peripheral vascular disease	2
Valve disorders	2
Cardiomyopathy	1
Dementias	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year for which a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the Office of Management and Budget.

EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries’ health status during the year before assignment to a MAPCP Demonstration practice. HCC scores for Medicare beneficiaries assigned to a MAPCP Demonstration practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to a MAPCP Demonstration practice had a mean HCC score of 1.02, meaning that they were predicted to be 2 percent more costly than an average Medicare FFS beneficiary. Beneficiaries’ average score on the Charlson Comorbidity Index was 0.79.³ Sixty-three percent of the beneficiaries had a low (zero) score on the Charlson Comorbidity Index, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before assignment to a participating demonstration practice. The most common chronic conditions diagnosed among the Medicare FFS beneficiaries were hypertension (38%), lipid metabolism disorders (20%), diabetes without complications (18%), coronary artery disease (11%), other respiratory disease (10%), and cardiac dysrhythmias and conduction disorders (10%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

³ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples’ Charlson Comorbidity Index, the greater morbidity in the study sample.

In **Table 7-5**, we report demographic and health status characteristics of Medicaid beneficiaries who were assigned to participating MAPCP Demonstration practices during the evaluation period (October 1, 2011, through March 31, 2013). Fifty-nine percent of the Medicaid beneficiaries assigned to MAPCP Demonstration practices during the evaluation period were children, with a mean age of 7 years, and the remaining 41 percent of Medicaid beneficiaries were adults, with a mean age of 38 years. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in **Table 7-4**. An estimated 50 to 53 percent of MAPCP Demonstration Medicaid beneficiaries resided in an urban area. Fifty percent of the Medicaid children were female, while 66 percent of Medicaid adults were female. Six percent of children were eligible for Medicaid due to disability, compared with 48 percent of adults. Medicaid children had relatively few chronic conditions (7% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score.⁴ In contrast, Medicaid adults had significantly more chronic conditions (46% had three or more chronic conditions) and a CDPS score of 1.3.

Table 7-5
North Carolina: Demographic and health status characteristics of Medicaid beneficiaries participating in the North Carolina MAPCP Demonstration from October 1, 2011, through March 31, 2013

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	11,997	8,414
Demographic characteristics		
Mean age	7.4	38.0
White (%)	50.8	60.2
Urban place of residence (%)	53.1	50.5
Female (%)	50.0	66.4
Medicaid eligibility due to disability (%)	6.1	47.6
Other Medicaid eligibility (%)	93.9	52.4
Institutionalized (%)	0.0	0.1

(continued)

⁴ The CDPS maps select diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of zero have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples' CDPS scores, the greater morbidity in the study sample.

Table 7-5 (continued)
North Carolina: Demographic and health status characteristics of Medicaid beneficiaries participating in the North Carolina MAPCP Demonstration from October 1, 2011, through March 31, 2013

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Health status		
Mean CDPS score groups	0.9	1.3
Low birth weight and serious perinatal problems (%)	1.8	—
Mean number of chronic conditions	0.7	2.6
0 chronic conditions (%)	57.4	33.1
1–2 chronic conditions (%)	36.0	20.9
3 or more chronic conditions (%)	6.7	46.0

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using North Carolina enrollment and claims files, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the Office of Management and Budget.

CDPS = Chronic Illness and Disability Payment System; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; — = not applicable.

SOURCE: North Carolina Medicaid enrollment and claims files.

Practice expectations. North Carolina required participating practices to achieve National Committee for Quality Assurance (NCQA) Physician Practice Connection (PPC[®]) PCMH[™] recognition within 12 months of joining the demonstration, a standard not required by CCNC before the start of the MAPCP Demonstration. Participating practices also had to be accepted into the Blue Quality Physician Program (BQPP) by the end of September 2013 and have BQPP reimbursement Level II or III scores. The BQPP, which is BCBSNC's PCMH program, required practices to achieve 2008 NCQA PPC[®]-PCMH[™] or 2011 NCQA PCMH[™] recognition, use electronic prescribing, file claims electronically, complete cultural competency training, and provide expanded access to care. Achieving a higher BQPP level signified increased practice competency in these PCMH activities.

In February 2013, BCBSNC removed some of the BQPP requirements for providers in practices affiliated with large hospital systems, independent practice associations, or academic medical centers. These providers then were able to focus on educational elements of the BQPP, such as completing the BQPP Physician Cultural Competency and Motivational Interviewing education modules. Because those practices' existing contractual agreements with BCBSNC already gave them a fee schedule similar to or above that of BQPP reimbursement Level III, they were precluded from receiving enhanced reimbursement upon achieving BQPP accreditation.

By December 31, 2013, all participating practices achieved NCQA recognition and were accepted into the BQPP. Most practices met both expectations by the original deadline of September 30, 2013. Those not meeting the September deadline were granted extensions by all payers because NCQA was unable to process their applications in time. This was a significant

achievement considering that only one practice had NCQA recognition at the start of the demonstration in October 2011.

Support to practices. North Carolina’s PCMH initiative used a multifaceted payment system. Payments varied by payer, practice, and enrollee. Medicare and Medicaid made per beneficiary per month (PBPM) payments to participating practices and regional networks, while BCBSNC made enhanced FFS payments to providers and PMPM payments to the regional networks. BCBSNC also made enhanced FFS payments to providers on behalf of State Employee Health Plan members. Starting January 1, 2014, the State Employee Health Plan contracted directly with CCNC to provide care management services to its members in the seven counties; thus, the State Employee Health Plan made PMPM payments to regional networks. Before January 1, 2014, State Employee Health Plan paid regional networks an annual lump sum based on a 1:40 ratio of full-time-equivalent nurse care managers to high-risk members. See *Table 7-6* for specific payment information.

The Medicaid PBPM payment varied by the beneficiary’s eligibility category, with higher payments for aged, blind, or disabled beneficiaries. Medicaid continued making payments for dually eligible beneficiaries attributed to a primary care provider (PCP) in a participating practice, as it did before the MAPCP Demonstration. Medicare did not make payments for aged, blind, or disabled beneficiaries. Medicare’s PBPM practice payment varied by level of NCQA PPC®-PCMH™ recognition, from \$2.50 PBPM for Level 1 to \$3.50 PBPM for Level 3. From October 1, 2011, through December 31, 2014, MAPCP Demonstration practices and regional networks received a total of \$6,580,469 in Medicare MAPCP Demonstration payments. The average Medicare payment per practice over the demonstration period was \$124,160 (*Table 7-7*).

The exact amount of the enhanced fees paid by BCBSNC was negotiated with each practice and was proprietary. According to BCBSNC, the fee enhancement was equivalent to a minimum of \$1.50 PMPM. A BCBSNC representative met with providers every 6 months to demonstrate the PMPM equivalent of the enhanced fees paid.

Table 7-6
North Carolina MAPCP Demonstration payments

Payer	Practice PMPM payment	Network PMPM payment
Medicaid	\$2.50—non-ABD \$5.00—ABD	\$3.72—non-ABD \$13.72—ABD
Medicare	\$2.50—Level 1 NCQA \$3.00—Level 2 NCQA \$3.50—Level 3 NCQA	\$6.50
BCBSNC	\$1.50 minimum	\$2.50
State Employee Health Plan	\$1.50 minimum	\$2.50

NOTES:

The Medicare PBPM payment amounts do not reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

ABD = aged, blind, or disabled; BCBSNC = Blue Cross Blue Shield of North Carolina; MAPCP = Multi-Payer Advanced Primary Care Practice; NCQA = National Committee for Quality Assurance; PMPM = per member per month; PBPM = per beneficiary per month

Table 7-7
North Carolina: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Average Medicare payment per practice	Total Medicare payments
Year One	\$39,369	\$1,929,064
Year Two	\$53,874	\$2,262,698
Year Three	\$49,225	\$1,919,781
Year Four: 3 months only	\$12,674	\$468,927
Overall	\$124,160	\$6,580,470

NOTES:

- The Overall amounts include Years One, Two, and Three and one additional quarter ending December 31, 2014.
- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.
- Total Medicare payments includes payments to practices and regional networks.

MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: Medicare claims data.

Primary care practices in North Carolina benefited from a strong provider support system, most notably with services provided through the regional CCNC networks. The participating networks identified high-risk Medicare, Medicaid, and State Employee Health Plan patients from CCNC Informatics Center reports and the electronic CCNC Care Triage tool (described below). BCBSNC developed protocols for its own nurse care managers to refer their high-risk patients to CCNC as necessary and appropriate. CCNC networks also provided care management and care coordination services for primary care practices within the network's service area. CCNC network staff (including nurse care managers and clinical pharmacists) offered education, medication reconciliation, quality improvement consultation, and care coordination. While data systems, care management, and clinical pharmacy were consistent across the regional networks, the networks also had flexibility in localizing statewide CCNC initiatives related to the MAPCP Demonstration and in piloting local projects that included MAPCP Demonstration beneficiaries, such as the palliative care initiatives described below.

Primary care practices also received individualized support from quality improvement consultants employed by Area Health Education Centers (AHECs), entities affiliated with the state's medical schools that also served as federally designated Regional Extension Centers to promote the adoption of health IT. AHECs received a mix of federal, state, and grant/contract funding to support their work.

CCNC provided extensive data support for all affiliated practices, nurse care managers, and clinical pharmacists, including those participating in the MAPCP Demonstration. CCNC delivered this support through three data systems in place since the beginning of the demonstration: the Informatics Center reports site, the Case Management Information System (CMIS), and Pharmacy Home data system.

The Informatics Center contained a warehouse for claims and hospital discharge data. Several reports were available from the claims data, including care gap alerts identifying patients who had not received recommended services, such as immunizations or screening tests. The Informatics Center also provided real-time hospital admission, discharge, and transfer (ADT) data for Medicaid patients and feedback reports on those utilization data aggregated at the patient, practice, county, and network levels. In Year Three, CCNC and its networks provided periodic patient-level reports to practices through the Provider Portal for quality improvement and care coordination activities. Some of these data were accessed by practice staff through an interface called the Provider Portal for quality improvement and care coordination activities, although utilization of this portal varied across practices. Upload of real-time Medicare and commercial payer data to the Informatics Center was not possible because these claims were delivered on a monthly basis to CCNC; the claims were uploaded as they were received by CCNC. Every CCNC practice had a set of reports available for Medicaid, and those participating in the MAPCP Demonstration had access to multi-payer patient data (i.e., Medicaid, BCBSNC, and Medicare) in the Provider Portal since January 2013.

CMIS was an electronic system populated with all-payer claims data and clinical information submitted by nurse care managers. Although CMIS was in place before the demonstration, CCNC integrated Medicare and BCBSNC claims data into the CMIS in January 2013 to support the demonstration. Throughout 2014, CCNC focused on standardizing care management procedures, including those for documenting activities in the CMIS. Although these procedures applied to all CMIS users, their development was critical to CCNC's ability to document care management activity for MAPCP Demonstration payers.

The Pharmacy Home data system served all PCPs' and networks' clinical pharmacists and care managers by recording and aggregating patient information on drug use. It provided patient-level information on pharmacy claims and medication history to support providers, pharmacists, and care managers when serving clients and generated population-based reports to identify patients who may benefit from clinical pharmacy and care management services. The database included descriptions of clinical pharmacists' activities and findings (identified drug interactions, expired medications, reconciled medications, suggested formulary alternatives, or recommendations for changes to lower-cost medication).

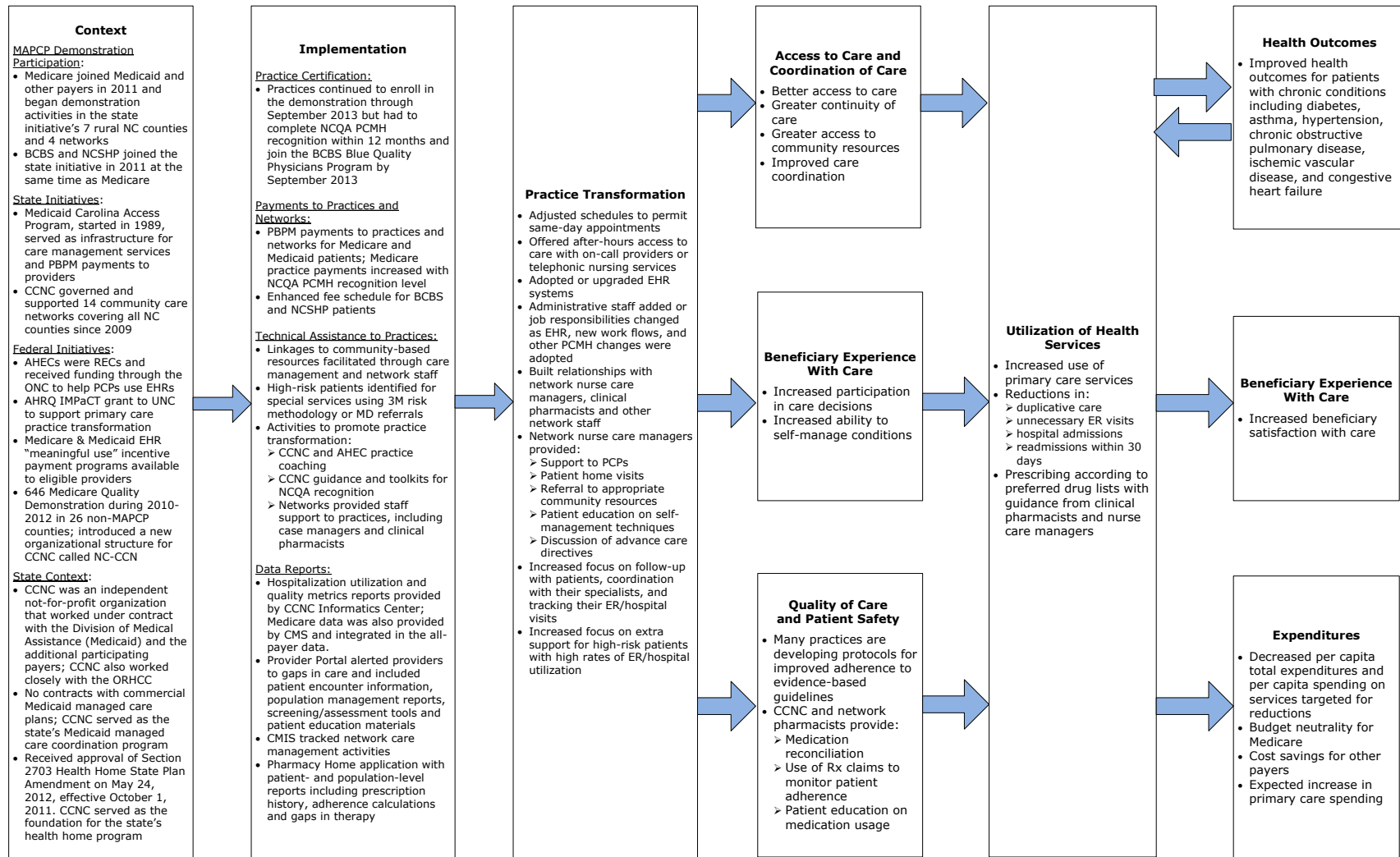
In 2014, CCNC deployed a new health IT tool called Care Triage for all practices, including those participating in the MAPCP Demonstration. Care Triage used pharmacy data to assign risk scores to individual patients. The scores indicated the patient's likelihood of requiring hospitalization in the future. Care managers used the scores to help identify priority patients for their services.

7.1.2 Logic Model

Figure 7-1 is a logic model of North Carolina's MAPCP Demonstration meant to depict the hypothesized relationship between specific elements of the MAPCP Demonstration and changes in outcomes. The first column describes the context for the MAPCP Demonstration, including its scope, other state and federal initiatives affecting the demonstration, and key features of the state context affecting the demonstration. The next two columns describe the implementation of the MAPCP Demonstration, which incorporated several strategies to promote

transformation of practices to PCMHs. The state initiative employed strategies to (1) improve access to and coordination of care with CCNC support; (2) increase quality of care and patient safety through care management and clinical pharmacy services; and (3) link patients with nurse care managers to improve patient engagement, self-management, and communication with their providers. These efforts were intended to promote more efficient utilization patterns, including increased use of primary care services and reductions in ER visits, avoidable inpatient admissions, and readmissions. Changes in utilization patterns were expected to produce improved health outcomes (which could, in turn, reduce utilization), greater beneficiary satisfaction with care, changes in expenditures consistent with utilization changes, and reductions in total per capita expenditures, resulting in budget neutrality for the Medicare program and cost savings for Medicaid, BCBSNC, and the State Employee Health Plan.

Figure 7-1
Logic Model for North Carolina MAPCP Demonstration



AHEC = Area Health Education Center; AHRQ = Agency for Healthcare Research and Quality; BCBS = Blue Cross Blue Shield; CCNC = Community Care of North Carolina; CMIS = Case Management Information System; EHR = electronic health record; ER = emergency room; IMPaCT = Infrastructure for Maintaining Primary Care Transformation; NC-CCN = North Carolina Community Care Networks; NCQA = National Committee for Quality Assurance; NCSHP = North Carolina State Health Plan; ONC = Office of the National Coordinator for Health Information Technology; ORHCC = Office of Rural Health and Community Care; PCMH = patient-centered medical home; PCP = primary care provider; PMPM = per member per month; REC = Regional Extension Center; UNC = University of North Carolina

7.1.3 Implementation

This section uses primary data gathered from North Carolina site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 7.1*.

Major changes during the evaluation period. In 2013, regional CCNC networks began contracting with the central CCNC office rather than the state. This contractual change facilitated the central office's ability to standardize processes more effectively across the networks. Participating payers and practices did not make significant changes to the care model during the evaluation period, but CCNC staff, payers, and providers (including network staff) worked together to implement ongoing refinements to improve the efficiency and effectiveness of network services, particularly for non-Medicaid populations.

Major implementation issues during the evaluation period. Networks faced a learning curve serving the Medicare-only and commercial populations when the North Carolina MAPCP Demonstration launched. The networks developed new processes to serve these populations more effectively as the demonstration continued (e.g., engaging commercial populations outside of normal work hours), but this was complicated by the fact that BCBSNC and the State Employee Health Plan already had implemented telephone care management programs for their members before the North Carolina MAPCP Demonstration. The change in contracting between CCNC and the State Employee Health Plan helped streamline workflows and reduce duplication between CCNC and plan-based care managers. Networks did not experience similar issues serving the Medicaid population during the demonstration; as one state official put it, the MAPCP Demonstration was "business as usual for Medicaid."

Data challenges also persisted through the demonstration's evaluation period. The Informatics Center provided robust data for providers and networks, but it took time for CCNC to incorporate new multi-payer data streams fully into its system. There were also some gaps in data availability; Medicare Part D data were integrated into the Pharmacy Home for participating dually eligible beneficiaries in 2013, but networks noted that Part D data for the Medicare-only population were lacking. Further, NCDHHS contracted with Truven Health Analytics in 2013 to implement a new MMIS data warehouse as part of the state's transition to NCTracks, the state's new MMIS. Because of ongoing issues with NCTracks, network-level Medicaid data feeds were delayed for approximately 1 year. As a result, reports provided to practices during part of Year Three were limited to Medicare and BCBSNC data. Participating practices and CCNC noted that the transition to NCTracks and the new data warehouse contributed to significant delays in the availability of Medicaid claims data, which limited practices' ability to identify gaps in care or monitor their performance.

Finally, network staff working with practices on transformation reported frustration among practices with the requirement to meet two sets of practice standards (NCQA and BQPP). Even though BQPP required practices to achieve NCQA PCMH recognition, at least one network interviewed felt that the time spent meeting BQPP requirements reduced the amount of time practices could spend directly improving patient care.

External and contextual factors affecting implementation. In addition to the state's transition to NCTracks, two other external and contextual factors affected implementation of the North Carolina MAPCP Demonstration. First, state leaders made a strategic decision to limit the demonstration to seven rural counties; one CCNC interviewee noted that implementation in rural, underserved areas may have presented the greatest chance of improving care outcomes. Other interviewees, including others within CCNC, speculated that larger, urban providers would have been able to implement the model more quickly. Further, limiting the demonstration to seven counties limited standardization across payers. BCBSNC chose to continue paying enhanced FFS rates to providers instead of joining Medicare and Medicaid in making PMPM payments because of the cost and administrative complexity associated with changing payment systems to accommodate such a small proportion of network practices. Second, North Carolina's health care market was constantly evolving during the demonstration period. Interviewees reported a great deal of provider consolidation across the state, as hospitals and large health care systems purchased and merged with independent primary care practices. Two participating practices left the demonstration at the end of 2013 after merging with a larger health care system. In addition, after the change in governor, there was uncertainty about whether the legislature would transition North Carolina's Medicaid program from an FFS PCCM to capitated commercial managed care.⁵ This climate created uncertainty about the future for CCNC staff.

7.1.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, data are a powerful tool for providers, and having data use agreements in place among stakeholders before launch may smooth implementation. The Informatics Center offered a wide array of tools to assist providers and network staff in identifying care gaps and monitoring health outcomes, but incorporating multi-payer data was an early challenge. Second, different populations require different approaches to care management. Networks were familiar with serving the Medicaid population, including those dually eligible for Medicare and Medicaid. Effectively serving the Medicare-only and commercial populations, however, required new approaches to engaging individuals and connections to new resources. Third, multi-payer PCMH initiatives require sufficient administrative funding. CCNC's central office devoted significant time and resources to the MAPCP Demonstration, but the payment methodology did not introduce any new administrative funding to support these costs. Finally, participating practices spent up to 2 years fully implementing the practice requirements. Throughout the evaluation period, state officials, CCNC staff, and providers all expressed concern that a 3-year demonstration was not enough time to demonstrate results; administrative processes and provider capabilities still were being built well into the second year of the initiative. Network staff also felt that they needed more time to show that refinements in care management processes would produce changes in cost or health outcomes. Nevertheless, participating practices ultimately met both NCQA and BQPP standards.

7.2 Practice Transformation

This section begins by describing the changes practices made to take part in the demonstration and patients' awareness of these changes, drawing on data from our focus groups

⁵ Legislation authorizing the implementation of capitated managed care eventually passed in September 2015.

and our three site visits (**Section 7.2.1**). We then present practices' experiences using technical assistance provided as part of the demonstration (**Section 7.2.2**) and practices' views on the payment model used in this demonstration, drawing on data from our site visits (**Section 7.2.3**). Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (**Section 7.2.4**). We then synthesize findings in **Section 7.2.5**.

7.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. In the first year of the MAPCP Demonstration, practices focused on achieving NCQA PPC® PCMH™ Level 1 recognition, which was not widely held before the initiation of the MAPCP Demonstration. While some practices already had implemented basic components for recognition, most practices still needed to establish written standards for practice processes and to start using EHRs and feedback reports to monitor particular patient populations or create a disease registry. Accreditation also required them to establish extended hours, make 30 percent of daily appointment slots available for same-day access, and arrange for continuous clinician availability, though many practices already had these elements in place before the demonstration. During the second year, practices moved on to BCBSNC BQPP accreditation, which required them to implement electronic prescribing, electronic claims submission, and cultural competency training for all staff. In the final year, the demonstration criteria for NCQA PCMH™ recognition and BQPP accreditation facilitated transformation because they established a formal process for accountability, self-assessment, and identification of areas for improvement. This foundation allowed practices to hone their care coordination activities, which became fully integrated in daily practice operations during the final year.

Practices across the state had varying degrees of difficulty in achieving NCQA PPC® PCMH™ Level 1 recognition in the first year of the demonstration. In rural areas, practices struggled with limited financial and staffing resources and often had to use personal time to meet the recognition deadlines. Likewise, some providers struggled to complete the cultural competency training required for BQPP accreditation because it also required a significant amount of personal time. Network staff noted that delays in provider completion of the cultural competency training stalled the BQPP application submission for many practices. Another challenge was difficulties experienced by network staff in explaining each payer's requirements for participation in the state initiative, leading to some frustration among providers later on.

At our last site visit, most practices were contemplating future recertification as a PCMH under the 2014 NCQA PCMH™ recognition criteria. One practice anticipated challenges in meeting these recognition criteria, but many providers reported that their practices would continue recertification through this process after the demonstration ended. One network interviewee noted that hospital-owned practices in their region would not renew their NCQA PCMH™ recognition because of an increased emphasis by their corporate leadership on participating in programs like Meaningful Use and the Physician Quality Reporting System. Practices with larger BCBSNC patient panels were most likely to renew their BQPP accreditation.

Practice staffing changes. Several administrative changes took place within MAPCP Demonstration practices, mainly as result of the adoption of EHRs and other health IT. Some front office staff were trained to become adept with the EHR. Others took on new duties and received new job titles. Nurse care managers continued to be an important part of CCNC infrastructure and remained integrated into practice activities. Some networks hired new geriatric nurses or trained existing nurse care managers to meet the needs of Medicare patients in anticipation of the MAPCP Demonstration. This did not occur in all networks, however; nurse care managers in the eastern part of the state continued to focus on the Medicaid population, saying that they lacked an understanding of the needs of the Medicare population, qualifications to meet such needs, and knowledge of community resources that might assist them.

During Year Two of the demonstration, staffing changes continued in both practices and networks. Practice changes were made largely to accommodate activities related to the development of health IT and care coordination. Some practices hired more staff to extend office hours to evenings and weekends, and others hired nurses to coordinate pre-visit planning activities. Network staffing changes were made to increase capacity for supporting practices through care management and clinical pharmacy activities. Nurse care managers were hired to manage the patients in MAPCP Demonstration counties, and some networks even embedded nurse care managers in practices for a few days per week to work directly with providers and patients.

In the final year of the demonstration, some practices integrated nurse care managers directly into their practices, while others continued to receive such services through the networks. Some practice staff reported that their staff members took on new roles to assist with PCMH activities, such as managing EHR data, working on a team designated to provide asthma care, or conducting pre-visit planning. Typically, these roles were performed by care coordinators, who assisted with pre-visit planning, generated reports from the EHR, and managed referrals. Participating networks continued to provide care management, care coordination, and clinical pharmacy services for primary care practices within the network's service area. At least two networks expanded their staff to support PCMH activities. One network added a clinical pharmacist and an EHR specialist. Another hired a licensed practical nurse care coordinator to focus primarily on transitional care and to work on-site with the practices.

Health information technology. The most time-consuming change for practices at the start of the MAPCP Demonstration was the adoption of EHRs. Although most practices had electronic prescribing capabilities and some had rudimentary EHR systems, most of the practices interviewed did not have full-featured EHRs before the start of the demonstration. Throughout Years One, Two, and Three, practices did more fully incorporate EHR systems, often making the switch to meet the BCBSNC BQPP electronic prescribing requirement. Some practices transitioned to a different EHR system in Year Two to meet CMS "meaningful use" criteria. Several practices began to use patient portals through their EHR system in Year Two, though many providers noted that low levels of literacy and a lack of access to computers or the Internet impeded wider patient use of these tools. By Year Three, providers still experienced frustration with adopting and using EHRs, but they also noted using them for direct communication with patients about labs, tests, and appointments; direct communication with a clinical pharmacist regarding patient care; and generation of reports to identify patients for follow-up and screening

appointments. In the MAPCP Demonstration provider survey, 88 percent of providers reported a high level of EHR adoption, consistent with the eight-state MAPCP Demonstration average (89%).

Despite significant advances in health IT, most practices were limited in exchanging information with other practices or hospitals to traditional methods, such as telephone, fax, and direct verbal hand-offs. Practice staff noted that the delays in communication with specialists was often a barrier in caring for a patient. Many practice and network staff expressed a need for the health information exchange to overcome compatibility issues among the many different EHR systems in practices and hospitals across the state. Even though challenges remained, practices and networks reported that local health information exchange interfaces and regional ADT feeds were improving.

Patient awareness of patient-centered medical home. Most patients and family members who participated in the focus groups indicated that they had never heard of the PCMH concept. Once the concept was described, many thought the idea could be helpful, especially for care coordination, which, in their opinion, still largely depends on patients themselves. Some were concerned that providers had limited time already and would not be able to do this well: “I think it’s wonderful, but I don’t think they physically have the time—just like what we were all saying. He’s got a thousand patients, and he’s got a hundred reports a day coming in. He’s not going to have time to review all those.”

Patient awareness of practice changes. Practice changes observed by patients were those related to EHR and telephone services. Some said that, since the implementation of electronic health systems, their providers were able to pull their records faster, even though things did slow down during transition. Others indicated that their providers started sending their prescriptions directly to the pharmacy. One participant noted that EHR systems were not always working as they supposed to (e.g., this patient received a request for the same blood work twice). Another participant did not appreciate that change and preferred paper copies instead of, or in addition to, electronic prescribing because in several instances a needed prescription was not at the pharmacy, and the patient had to contact the practice again.

Several focus group participants indicated that EHRs made their relationship with their provider less personal: “They get on that computer thing and stay on it more than they do with the patient.” Others questioned whether their providers used the information received through an EHR in timely and effective ways.

Focus group participants noted the lack of interoperability of electronic health systems across practices and other care settings: “One of the problems [with electronic health systems] is that each practice has its own, so there is no interaction between the different ones, so that one doctor doesn’t have your records from the other place automatically.”

Most focus group participants observed that their practices put telephone services in place. Many thought that such systems worked effectively for both regular appointments and urgent ones. Some indicated that they would get a call from a nurse quickly once they left a message. Others indicated that such systems made it more difficult to see a provider and that

such services were not patient-centered: they were difficult to navigate, and getting to the needed type of service was hard.

7.2.2 Technical Assistance

Technical assistance at the network and state level was an important facilitator for practices in the initiative. CCNC and local networks provided considerable technical assistance to practices as they engaged in the NCQA PPC® PCMH™ recognition process in Year One and the BCBSNC BQPP accreditation process in Year Two. Webinars, speakers, and toolkits were provided on both administrative (e.g., EHR purchase) and substantive (e.g., substance abuse treatment) topics. Practice members interviewed were very positive about these activities. According to our interviews, network representatives were frequent visitors to practices and often stopped by to help solve problems. While many practices said that network staff and CCNC practice facilitators were helpful throughout the demonstration with PCMH requirements and advice about how other practices engaged in quality improvement activities, some practice staff reported a need for more training specific to health IT.

7.2.3 Payment Supports

In general, there were mixed views on the effectiveness of the varying types of payment supports incorporated into the state's multi-payer initiative. While most providers indicated that the new payments had helped, none thought they were sufficient to offset the costs of the program changes and certainly did not pay for the EHRs and the extra time devoted to meeting the requirements of the multi-payer state initiative.

In addition to some disappointment in the amount of the payments, there were other issues. During the Year Two site visit, networks and practices described the transition to the new Medicaid billing system (NCTracks) as “a real nightmare” and “a disaster.” Because of issues related to NCTracks since July 2013, providers did not receive complete Medicaid payments until March 2014. The payment lags were a distraction that diminished practices' ability to focus on quality improvement activities and the multi-payer initiative. During the Years Two and Three site visits, network and practice respondents emphasized an important difference in payment mechanisms for independent practices in contrast with practices owned by health care systems: payments to practices owned by a health care system went directly to the system's corporate-level management and not to the practice or its providers.

7.2.4 Practices' Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level, and one representing a high level of adoption of the activity. Survey findings presented in *Table 7-8* and *Table 7-9* focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results significantly different from the average for the eight MAPCP Demonstration states

noted. Given the low response rate in North Carolina, these survey results should be interpreted with caution.

The Overall Practice Transformation Index reported in **Table 7-8** is the percentage of activities adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities in which North Carolina providers reported engaging was comparable to the average percentage across the eight MAPCP Demonstration states for five of the six PCMH domains. The share of care management activities in which North Carolina providers reported engaging, however, was significantly lower (66%) than the eight-state MAPCP Demonstration average (78%). Further, the Overall Practice Transformation Index was also significantly lower (60%) than the eight-state MAPCP Demonstration average (72%). These results might be due to the low response rate and limited comparability with similar practices in rural areas in other states. Also, low engagement of care management activities suggests that network-based care management services were not fully used by practice providers or that existing care management had limited capacity to meet the needs of practices.

Table 7-8
North Carolina: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in North Carolina (N = 26 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	60*	72
Practice Transformation Index by Domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	59	76
Care management (without involvement of other providers)	66*	78
Care coordination (involving other health care providers)	58	68
Patient engagement and self-management	45	57
Quality improvement	62	76
Health IT	88	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

IT = information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 7-9 presents the percentage of providers in North Carolina who reported high-level adoption of particular PCMH activities compared to the MAPCP Demonstration eight-state average. Providers in North Carolina did not perform any of the PCMH activities at a higher rate

than the eight-state average. The surveyed providers were not statistically significantly different from the eight-state average for 13 of the 23 PCMH activities. They performed worse than the eight-state average for the remaining 10 activities:

- After-hours access to practice staff by phone and through evening or weekend office hours (35% in contrast to 69%);
- Providing alternate types of contact (e.g., e-mail, Web, text message) with the practice team along with timely responses (31% in contrast to 71%);
- Monitoring patients' care during hospital stays and providing patient-clinician continuity (46% in contrast to 74%);
- Having registries available to practice teams for pre-visit planning, provider reminders, patient outreach, and population health monitoring (31% in contrast to 59%);
- Providing clinical management for complex patients, including coordination of care with other providers and caregivers, and provision of educational resources and support for self-management (62% in contrast to 87%);
- Delivering preventive screenings at visits specifically scheduled for this purpose, along with identifying needed preventive services using clinical decision support tools (42% in contrast to 78%);
- Having referral protocols and agreements with other providers (23% in contrast to 50%);
- Providing behavioral health support, including referrals that include relevant patient information and timely follow-up (42% in contrast to 64%);
- Offering patient self-management support through goal setting and action planning with staff trained in patient education and empowerment (27% in contrast to 57%); and
- Engaging in systematic quality improvement activities (e.g., plan-do-study-act cycles) (54% in contrast to 81%).

These results are discussed in greater detail and contextualized in subsequent sections of this chapter.

Table 7-9
North Carolina: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in North Carolina (N = 26 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	96	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	88	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings and weekends. The practice actively participates in coordinating emergency department care and follows up with patients after visits to the emergency department.	35*	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	31*	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	46*	74
Care management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high risk patients.	31*	59
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	73	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	96	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	62*	87

(continued)

Table 7-9 (continued)
North Carolina: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in North Carolina (N = 26 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	42*	78
Tracking and follow-up with patients about test results... Is consistently done.	92	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	73	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	23*	50
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	96	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	42*	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	58	80
Patient engagement and self-management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	54	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	38	51

(continued)

Table 7-9 (continued)
North Carolina: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in North Carolina (N = 26 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Involving patients and caregivers in health care decision-making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and/or teach-back techniques.	62	67
Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	27*	57
Quality improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	54*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	69	79
Health Information Technology (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	88	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

7.2.5 Discussion of Practice Transformation

At the end of the MAPCP Demonstration, North Carolina practices reported progress in practice transformation as evidenced by achievement of PCMH recognition, refined and enhanced network and practice staffing roles, and health IT adoption. EHR use and enhanced telephone services were the most visible changes to patients. However, the Overall Practice Transformation Index for North Carolina was significantly lower (60%) than the eight-state MAPCP Demonstration average (72%).

During site visits, many practices reported having PCMH capabilities related to access to care already in place before the demonstration; however, after-hours access, alternate types of contact, and clinician continuity were capabilities that were all significantly lower in North Carolina practices compared to the MAPCP Demonstration eight-state average. This suggests that practices may have had overly optimistic perspectives about their practice's capabilities or that practices that participate in site visits may not be representative.

Despite network and practice staffing enhancements made during the demonstration, North Carolina practices reported significantly lower PCMH capabilities related to care management and care coordination in Year Three. One explanation for this finding is the length of time it took practices to achieve PCMH recognition and adopt EHRs over the first 2 years of the demonstration, leaving little time to fully implement and refine care management and coordination approaches, particularly for Medicare patients who had not been previously served by network care managers in one of the two regions participating in the demonstration.

Technical assistance to practices was largely focused on helping to support PCMH recognition in Years One and Two, with assistance in Year Three focused on helping practices solve problems or share strategies for engaging in quality improvement. Despite favorable perceptions of the technical assistance provided, practice staff reported needing more training specific to health IT. Although North Carolina providers reported a similar level of EHR adoption as the eight-state MAPCP Demonstration average, they reported lower than average PCMH capabilities related to registry use and delivery of clinical preventive services using clinical decision support tools, suggesting a gap between adoption of EHRs and full implementation and use of their available features. Further, existing health information exchanges were still in the process of maturing, and low literacy and limited patient access to computers constrained the ability of practices to exchange information electronically with hospitals, specialty care providers, and patients.

7.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 7.3.1*), impacts on utilization of services and clinical quality (*Section 7.3.2*), and a synthesis of these findings (*Section 7.3.3*).

7.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

During the first year of the North Carolina MAPCP Demonstration, quality of care and patient safety interventions in North Carolina focused on management of chronic conditions, preventive care services, medication safety and fall prevention, prevention of ER visits and hospital readmissions, and operational interventions such as outreach and patient engagement. After joining the MAPCP Demonstration and undergoing the NCQA PPC[®] PCMH[™] recognition process, several practices developed new protocols and started using standards of care and evidence-based guidelines. Some practices started using evidence-based protocols for asthma, diabetes, and CHF that are built into EHRs and charts. To engage patients more effectively, practice staff used a variety of tools and patient education techniques facilitated by CCNC. Examples include a refrigerator magnet that shows symptoms of hyper- and hypoglycemia; the

self-management toolkit, allowing patients to keep their medical records, so that they and providers know when they last had their HbA1c levels checked, what the value was, and what the range should be; and guides on asthma control. Significant efforts also were made with regard to medication safety and management. Nurse care managers and clinical pharmacists conducted medication reviews and reconciliations for polypharmacy patients with the goal of identifying and rectifying expired, duplicate, or incorrect dosage medications, as well as understanding reasons why patients might be not taking their medicines as prescribed. This clear focus on clinical pharmacy may explain, in part, why such a large percentage (87%) of CAHPS PCMH survey respondents reported that someone in their provider's office talked with them about all of the medications they were taking at each office visit.

In the second year, care managers continued to implement many of the same quality of care and patient safety interventions on which they focused during the first year. Network respondents reported that, during the second year, practices took on small quality improvement activities and implemented policies and procedures throughout their practice for the purposes of achieving NCQA PPC® PCMH™ recognition and BQPP accreditation. Network quality improvement teams drafted plans for quality improvement activities in Year Three, aimed initially at using the care alerts from the Provider Portal. Some practices looked into the care alerts to identify patient care needs. Three networks advanced their palliative care initiatives. One network reached out to two local hospice organizations to discuss implementing a local palliative care pilot for which the network received additional CCNC funding.

During the final year of the demonstration, practices continued to engage in PCMH practice transformation activities for improving quality of care, patient safety, and health outcomes. Practices held diabetes management training sessions with patients and staff, used their patient portal to contact patients with follow-up needs, and reached out to patients with chronic conditions to offer education on self-management and facilitate care coordination across providers. Practices also contacted patients to schedule Medicare annual wellness and preventive care visits, developed a tracking system for referrals, and set up automated reminders for both providers and patients about upcoming visits and previous care needs. Although most of these activities were not new, the protocols and systems established as result of the North Carolina MAPCP Demonstration allowed them to identify patients that they had previously missed. Such improvements remained limited to practices and did not extend to other care settings, such as hospitals, where information exchange about admissions and discharges was still limited and did not provide actionable information allowing identification and follow-up with patients in need of care.

7.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

The North Carolina MAPCP Demonstration was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the North Carolina MAPCP Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 7-10** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and on one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 7-11** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population include breast cancer screening, cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the MAPCP Demonstration in the likelihood of receiving the service in Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared to the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared to the CG. MAPCP Demonstration beneficiaries are expected to have positive values for all indicators, except the “none” indicator in diabetes care.

Although 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the process of care indicators were measured at the annual level, so only the first 12 quarters of data for an individual were used. Because of the transition to NCTracks, the MMIS, North Carolina was able to provide Medicaid claims only through March 31, 2013. Therefore, estimates for the Medicaid population in **Table 7-11** reflect only the first year of the MAPCP Demonstration but are otherwise interpreted as described.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to North Carolina MAPCP Demonstration practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and CHF. The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 7-12** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the North Carolina MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, whereas a positive value corresponds to an *increase* in the rate of events compared to the CG. If the North Carolina MAPCP Demonstration was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures included all 13 quarters of data.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 7.3.3**.

Table 7-10
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 6,291)	0.58	[-0.41, 1.57]	1.22*	[0.28, 2.16]
Year Two (N = 4,866)	-0.63	[-2.20, 0.93]	-0.04	[-1.25, 1.18]
Year Three (N = 3,199)	0.16	[-2.22, 2.55]	0.69	[-1.31, 2.69]
Overall (N = 6,988)	0.08	[-0.98, 1.14]	0.68	[-0.33, 1.69]
Retinal eye examination				
Year One (N = 6,291)	-2.32	[-4.81, 0.17]	-1.12	[-2.97, 0.74]
Year Two (N = 4,866)	-1.05	[-4.55, 2.45]	0.14	[-2.07, 2.35]
Year Three (N = 3,199)	3.43	[-1.25, 8.12]	2.33	[-0.26, 4.92]
Overall (N = 6,988)	-0.61	[-3.19, 1.98]	0.08	[-1.70, 1.86]
LDL-C screening				
Year One (N = 6,291)	0.09	[-2.23, 2.41]	0.60	[-0.95, 2.15]
Year Two (N = 4,866)	0.24	[-3.16, 3.65]	-0.42	[-2.39, 1.56]
Year Three (N = 3,199)	1.49	[-2.66, 5.64]	0.55	[-2.47, 3.57]
Overall (N = 6,988)	0.45	[-2.37, 3.28]	0.24	[-1.58, 2.07]
Medical attention for nephropathy				
Year One (N = 6,291)	-0.68	[-5.96, 4.60]	1.29	[-3.72, 6.29]
Year Two (N = 4,866)	1.30	[-4.25, 6.84]	2.35	[-2.76, 7.46]
Year Three (N = 3,199)	3.11	[-3.90, 10.12]	7.06*	[0.88, 13.24]
Overall (N = 6,988)	0.83	[-3.71, 5.38]	2.93	[-1.76, 7.63]

(continued)

Table 7-10 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received all 4 diabetes tests				
Year One (N = 6,291)	-2.16	[-6.00, 1.68]	-1.27	[-4.62, 2.07]
Year Two (N = 4,866)	0.45	[-3.09, 4.00]	0.84	[-2.99, 4.68]
Year Three (N = 3,199)	4.85*	[0.57, 9.13]	3.60	[-1.19, 8.38]
Overall (N = 6,988)	0.29	[-2.88, 3.46]	0.53	[-2.97, 4.03]
Received none of the 4 diabetes tests				
Year One (N = 6,291)	-0.09	[-0.58, 0.39]	-0.33	[-0.70, 0.03]
Year Two (N = 4,866)	0.09	[-0.60, 0.79]	-0.09	[-0.65, 0.47]
Year Three (N = 3,199)	-0.30	[-1.31, 0.71]	-0.33	[-1.14, 0.48]
Overall (N = 6,988)	-0.08	[-0.57, 0.42]	-0.25	[-0.65, 0.15]
Total lipid panel				
Year One (N = 7,944)	1.56	[-1.60, 4.72]	1.17	[-0.52, 2.87]
Year Two (N = 6,393)	0.20	[-3.50, 3.90]	0.81	[-1.28, 2.90]
Year Three (N = 4,499)	2.35	[-3.18, 7.87]	-0.20	[-4.07, 3.67]
Overall (N = 9,883)	1.29	[-2.37, 4.94]	0.72	[-1.39, 2.83]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.
- Because of a change in the state's MMIS, North Carolina was unable to provide Medicaid data after December 2012 in time for analysis for this report.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; MMIS = Medicaid Management Information System; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare North Carolina MAPCP Demonstration beneficiaries, there were no statistically significant *overall* differences observed in the likelihoods of receiving any of the process of care measures.

Table 7-11
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Four quarters of the MAPCP Demonstration

	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing Year One	N/A	N/A	N/A	N/A	N/A	584	4.87	[-4.43, 14.17]	-3.51*	[-6.49, -0.54]
Retinal eye examination Year One	N/A	N/A	N/A	N/A	N/A	584	-1.60	[-19.07, 15.88]	8.92*	[2.72, 15.12]
LDL-C screening Year One	N/A	N/A	N/A	N/A	N/A	584	-0.16	[-9.22, 8.90]	-2.99	[-6.75, 0.78]
Medical attention for nephropathy Year One	N/A	N/A	N/A	N/A	N/A	584	-0.09	[-0.26, 0.08]	-0.23	[-0.77, 0.32]
Received all 4 diabetes tests Year One	N/A	N/A	N/A	N/A	N/A	584	0.68	[-12.64, 13.99]	5.19	[-0.39, 10.77]
Received none of the 4 diabetes tests Year One	N/A	N/A	N/A	N/A	N/A	584	0.00	[-0.04, 0.04]	0.08	[-0.10, 0.26]
Breast cancer screening Year One	N/A	N/A	N/A	N/A	N/A	1,050	-5.85*	[-11.32, -0.38]	-6.84*	[-11.84, -1.84]
Cervical cancer screening Year One	N/A	N/A	N/A	N/A	N/A	2,159	-3.38	[-7.01, 0.26]	-1.75	[-4.53, 1.03]
Appropriate use of antidepressant medication management: 12 weeks Year One	N/A	N/A	N/A	N/A	N/A	263	5.88	[-8.25, 20.01]	0.59	[-6.83, 8.01]

(continued)

Table 7-11 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Four quarters of the MAPCP Demonstration

	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Appropriate use of antidepressant medication management: 6 months Year One	N/A	N/A	N/A	N/A	N/A	263	2.91	[-0.94, 6.76]	1.68	[-5.12, 8.47]
Appropriate use of asthma medications Year One	224	7.76	[-3.30, 18.82]	-4.37	[-13.52, 4.77]	287	-4.11	[-11.84, 3.63]	-7.23*	[-13.68, -0.78]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found some evidence that the North Carolina MAPCP Demonstration affected process of care measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Among Medicaid children, we find no evidence of an impact on the appropriate use of asthma medications. Specifically, **Table 7-11** shows the following:

- The *overall* likelihood of **HbA1c testing** and **appropriate use of asthma medications** decreased among adult Medicaid North Carolina MAPCP Demonstration beneficiaries compared to adult Medicaid beneficiaries assigned to non-PCMH comparison practices only.
- The *overall* likelihood of **retinal eye examinations** increased among adult Medicaid North Carolina MAPCP Demonstration beneficiaries compared to adult Medicaid beneficiaries assigned to non-PCMH comparison practices only.
- The *overall* likelihood of **breast cancer screening** decreased among adult Medicaid North Carolina MAPCP Demonstration beneficiaries compared to adult Medicaid beneficiaries assigned to either PCMH or non-PCMH comparison practices.

Among Medicaid adults, no statistically significant *overall* changes were observed for the measures of low-density lipoprotein cholesterol (LDL-C) screening, medical attention for nephropathy, receipt of all four diabetes tests, receipt of none of the diabetes tests, cervical cancer screening, and appropriate use of antidepressant medication management.

Table 7-12
North Carolina: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 26,461)	0.19	[-0.73, 1.12]	0.05	[-0.62, 0.71]
Year Two (N = 27,445)	-0.07	[-1.07, 0.94]	-0.77	[-1.57, 0.02]
Year Three (N = 26,454)	-0.39	[-1.94, 1.15]	0.04	[-0.87, 0.95]
Overall (N = 33,393)	-0.04	[-0.90, 0.83]	-0.20	[-0.79, 0.40]
PQI admissions—overall ²				
Year One (N = 26,461)	0.26	[-2.25, 2.78]	0.53	[-0.63, 1.69]
Year Two (N = 27,445)	1.79	[-1.16, 4.73]	2.25*	[0.58, 3.91]
Year Three (N = 26,454)	1.72	[-1.36, 4.81]	1.48	[-0.17, 3.13]
Overall (N = 33,393)	1.14	[-1.46, 3.73]	1.48*	[0.26, 2.70]
PQI admissions—acute ³				
Year One (N = 26,461)	0.00	[-1.52, 1.52]	0.68	[-0.04, 1.40]
Year Two (N = 27,445)	0.91	[-0.84, 2.66]	1.48*	[0.44, 2.52]
Year Three (N = 26,454)	0.45	[-0.99, 1.89]	0.47	[-0.56, 1.50]
Overall (N = 33,393)	0.49	[-0.90, 1.88]	0.87*	[0.12, 1.61]

(continued)

Table 7-12 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 26,461)	0.07	[-1.25, 1.39]	-0.10	[-0.71, 0.51]
Year Two (N = 27,445)	0.76	[-0.64, 2.16]	0.80	[-0.01, 1.60]
Year Three (N = 26,454)	1.24	[-0.66, 3.15]	1.03*	[0.13, 1.92]
Overall (N = 33,393)	0.58	[-0.81, 1.97]	0.65*	[0.05, 1.25]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the comparison group. A *positive* value corresponds to an *increase* in the rate of events compared to the comparison group.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that the North Carolina MAPCP Demonstration increased the rate of PQI admissions, though statistical significance was not seen across both CGs. Specifically, **Table 7-12** shows the following:

- The *overall* rate of **overall, chronic, and acute PQI admissions** increased among North Carolina MAPCP Demonstration Medicare beneficiaries compared to Medicare beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events.

7.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

In the first year of the North Carolina MAPCP Demonstration, participating practices completed the requirements for NCQA PPC® PCMH™ recognition and began to implement patient education programs and evidence-based guidelines for disease protocols. Practices continued these quality improvement activities into the second year, and many practices started using care alerts from the Provider Portal to identify patients with medical needs. During the final year of the demonstration, practices focused on self-management education for diabetes and other chronic diseases and implemented more systematic approaches to scheduling visits and tracking referrals that allowed the practices to outreach to previously overlooked patients.

However, despite these trainings and other efforts to improve health care quality, we did not see statistically significant overall improvements in the six process of care measures related to diabetes. For the Medicaid population, having access to only a single year of Medicaid data prevented our analysis from ascertaining whether the quality improvements, particularly in the final year, were effective in increasing the likelihood of receiving the diabetes-related screenings. While we might have expected to see more immediate improvements in the diabetes-related process of care measures for Medicare beneficiaries, there may be a need for a more than 3-year evaluation period to demonstrate an association between participation in the North Carolina MAPCP Demonstration and significant overall positive changes in these measures.

Practice and network staff noted that they continued to work on improving their preventive screening rates, particularly for mammography screenings and diabetes follow-ups. Most of these activities did not start until the third year of the demonstration, however, which may explain in part why there was little evidence of increases in preventive care screenings. North Carolina MAPCP Demonstration providers also reported lower rates of identifying and scheduling preventive screenings, relative to all providers participating in the MAPCP Demonstration.

There was no evidence that the North Carolina MAPCP Demonstration was associated with a reduction in preventable hospitalization outcomes for the beneficiaries. This finding was consistent with feedback from patients, who reported using hospital services because of the lack of access to their practices during weekends and after work hours, as further discussed in *Section 7.4.1*.

7.4 Access to Care and Coordination of Care

This section describes the changes practices made aimed at improving access to care and coordination of care (*Section 7.4.1*), impacts on access to care and coordination of care (*Section 7.4.2*), and a synthesis of these findings (*Section 7.4.3*).

7.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

During Year One, most MAPCP Demonstration practices said that they already had several processes and procedures in place that enhanced access to primary care. Therefore, there was little emphasis on expanding access to primary care in Years Two and Three.

Many practices had open-access dedicated time for same-day appointments. A few practices that did not offer same-day appointments before the demonstration began providing such services in Year Two. Thus, it is not surprising that, in the Year Three provider survey, 88 percent of the practices reported that same-day appointments were usually available for urgent care needs. During Year Three, CAHPS PCMH survey respondents confirmed this finding, with 90 percent reporting that they usually or always got an appointment as soon as they needed it, and 78 percent reporting that they got same-day or next-day appointments when they needed care right away. Some patients in the focus groups conducted in Year Three noted that their practices had walk-ins and were able to take them the same day, even if their provider was not available. However, other Medicare patients indicated that they went to the ER during regular weekday hours because of concerns that their doctors would not be able to get them in or that they would have to wait too long. Several indicated that their practices were small and did not have additional providers or nurse practitioners; if the provider was not available, they had to go to the ER.

Medicare beneficiaries seemed to be better informed about appropriate use of the ER than Medicaid beneficiaries and indicated that when contacted for urgent needs during work hours, their providers would always work them in. Some ER use was driven by the fact that the urgent care facility in the area had the same hours as practice offices. A few focus group participants were not aware of urgent care services at all, or they did not see value in going there because they would be sent to the hospital anyway.

Many practices also offered after-hours and weekend care and after-hours access to medical advice for their patients by having providers rotate on-call duty, or by using a telephone nurse triage service. However, despite these efforts, only 45 percent of CAHPS PCMH survey respondents reported that they were usually or always able to get the care they needed from their provider's office during evenings, weekends, or holidays, while 46 percent reported that they were never able to get care from their provider's office outside of regular office hours. North Carolina MAPCP Demonstration providers also recognized that after-hours care was not always readily available, with only 35 percent of practices reporting that providers were available in evenings and on weekends, compared to 69 percent of practices across all demonstration states. Focus group participants across all groups indicated high level of ER use, especially during non-office hours. Many patients indicated that the ER was the only place to go if they got sick at night and on weekends. In some cases, their providers directed them to go to the ER because a practice was too full or did not have an available provider. For example, there were patients who had to go to the ER just to get antibiotics—something that could have been prescribed over the phone, but providers would not do so without seeing the patients, who had difficulties getting in to see the providers.

During Year Three, staff of one network recognized that many patients were not aware of some of the access to care services offered by practices and that they needed to educate patients about services available to them. For example, they observed that patients often did not know that they could get an appointment the same day and were unsure about when and how to ask for it. To address this gap in knowledge, staff at one practice conducted a "Call Us First" campaign to educate patients about their office hours and encourage them to contact the on-call doctor outside of regular hours before going to an urgent care center or ER. Despite existing services and features for increasing access, network interviewees recognized that access barriers in rural

areas remained. Many of those barriers were attributed to difficulties in hiring and retaining providers in these areas and a lack of behavioral health care services. Focus group participants recognized that extended office hours and coverage were more difficult because they lived in rural areas with a limited number of providers and very small rural practices.

Access to routine care and check-ups was highly rated, with 95 percent of surveyed patients reporting that they were usually or always able to make an appointment for a check-up or routine care as soon as they needed. Likewise, most patients in the focus groups conducted in Year Three agreed that it was easy to schedule regular appointments in advance.

Patients had diverse experiences with the telephone services that many practices had in place for reaching practice staff and scheduling appointments. Many thought that such systems worked effectively for regular appointments as well as urgent ones. Others indicated that such systems made it more difficult to see a provider and they were not patient-centered: the systems were difficult to navigate, and it was hard to get to the needed type of service.

On another measure of access, wait times, patient responses were mixed. Focus group participants reported varied experiences with wait times. Most indicated that they would be seen on time or within 15 to 20 minutes of their scheduled time. Others indicated that their providers were always late. In some cases, focus group participants in the same practice shared different feedback about wait times. Several observed that wait times might have been related to the time of the day, with early morning appointments usually being on time and those in the afternoon delayed. The focus group responses mirrored the CAHPS PCMH survey responses, where just 60 percent of survey participants said that their appointment usually or always began within 15 minutes of its scheduled start time.

Given the perceived state of access to primary care, changes in Year One focused on enhancing access to specialty care, particularly in rural areas. One network reported that they used MAPCP Demonstration fees to bring cardiologists, pain management specialists, and nephrologists from urban to rural areas once or twice a week to see patients. The staff of the same network reported that they wrote policies to refer all after-hours care to the local urgent care center, which had an interoperable medical records system with the practices in the area. Some practices reported hiring certified diabetes nurse educators to work with diabetic patients and instituting a telephone health program for patients with heart failure.

Focus group participants indicated that their PCPs made referrals to the specialists and often helped schedule the first visit. One Medicare patient noted that referrals certainly increased compared to past experience. Focus group participants shared mixed experiences with the level of care coordination with specialists. Most indicated that their PCPs were well informed about their care received from a specialist, with information transferred electronically or by fax. Others indicated that it depended on the specialist or that coordination was poor in cases when practices had different EHRs that were not integrated. Some noted that coordination was especially poor when they had to see a specialist “out of town.”

A few patients questioned whether their PCPs were using the information that they received from specialists because providers sometimes appeared to be unaware of the

information in the medical record: “They [transferred records] might be there all day long, but...are they actually looking at this for me?”

Care coordination was the key focus of North Carolina’s demonstration. Care management services targeting the Medicaid population were in place before the demonstration, so much of this activity focused on enhancement and expansion of existing services to Medicare and commercial patient populations. During Year One, networks and some practices used supplemental payments from the demonstration, BCBSNC, and State Employee Health Plan to hire more care managers and other care coordination staff. Network nurse care managers focused on patients with the highest risk of avoidable health care use based on CCNC’s algorithm or those with multiple chronic conditions. They provided educational services and in-person outreach, medication reconciliation, and connections to community-based services. They also helped with scheduling of appointments with physicians and arranging patient transportation. They created post-discharge patient care plans and visited patients at home. Such activities were not consistent across the networks, however, and there were great differences in the capacity and resourcefulness of activities provided to the new patient population.

Care managers and network staff continued to fine-tune their approach in Years Two and Three, maximizing the use of all available resources to identify and follow up with patients. CCNC network care managers worked with hospital-based case managers and discharge planners to prevent transitional care gaps and facilitate referrals for hospitalized patients. While differences in capacity and ability to address the needs of new patient populations across different networks remained, care managers became more effective at meeting the needs of Medicare patients over the course of the demonstration with services such as falls prevention training and community resources for elderly.

Some caregivers who participated in the focus groups indicated that care managers checked on their family member after hospital discharge and conducted medication reconciliation. A few said that they were in regular contact and receiving help with doctor’s appointments, care planning, and changes in their medication regimen that might have been made by other providers. These caregivers indicated that care managers were helpful to them, especially in terms of the emotional support they needed.

Focus group participants had diverse experiences with coordination of their PCPs with hospitals. Some reported that their PCPs always were informed of their visit to the ER or a hospital stay and had access to all their records through electronic file transfer. Many, however, indicated that their PCP had no knowledge of their ER visits or hospital stays. Several focus group participants said that their PCP did not have the blood work results, x-rays, or other lab results for tests done at the hospital and were requesting the same tests again. Several participants viewed the communication between hospital and PCP as their responsibility, and they were the ones to inform their PCPs following any visit to the hospital.

Several practices introduced patient portals. Use of EHR systems in conjunction with patient portals in some practices, particularly in the western region, were intended to provide patients with quicker responses, easier access to their own records, and the opportunity to communicate directly with their provider, instead of going through multiple channels, such as voicemail or a nurse. Despite these enhancements, very few focus group participants had

experience using patient portals, and most were not aware that they existed. Some recognized that such features could enhance care coordination if the health information on the portal was integrated with hospital and specialists records. Many indicated that they would not be using patient portals because they did not have and could not afford computers or Internet access or did not know how to use computers.

7.4.2 Impacts on Access to Care and Coordination of Care

The North Carolina MAPCP Demonstration was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the North Carolina MAPCP Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 7-13** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the continuity of care index.
- **Table 7-14** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

North Carolina MAPCP Demonstration beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to the CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under the MAPCP Demonstration. For Medicare, these measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared to the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.

Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures included all 13 quarters of data. Because of data limitations, estimates for the Medicaid population in **Table 7-14** reflect only the first 6 quarters of the MAPCP Demonstration in North Carolina.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the continuity of care index, which is measured annually, ranges from 0 to 1. North Carolina MAPCP Demonstration beneficiaries were expected to have higher values on the continuity of care index. Because of limitations in the Medicaid claims data, the continuity of care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the continuity of care index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with the North Carolina MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in Year One, Year Two, Year Three, or all years. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with the North Carolina MAPCP Demonstration in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared to the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared to the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Although 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, primary care visits as a percentage of total ambulatory care visits and the continuity of care index were measured at the annual level, so only the first 12 quarters of data for an individual were used. Because we only had 6 quarters of Medicaid data available after the start of the MAPCP Demonstration, estimates for the measure of primary care visits as a percentage of total visits among the Medicaid population reflect only the first 4 quarters (i.e., the first year) of the MAPCP Demonstration in North Carolina.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in *Section 7.4.3*.

Table 7-13
North Carolina: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 26,461)	-28.34	[-148.04, 91.36]	41.88	[-72.99, 156.75]
Year Two (N = 27,445)	-4.92	[-106.50, 96.67]	33.13	[-84.36, 150.62]
Year Three (N = 26,454)	-13.39	[-117.17, 90.39]	-7.71	[-125.15, 109.74]
Overall (N = 33,393)	-11.70	[-118.03, 94.63]	23.10	[-92.71, 138.91]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 26,461)	-29.21	[-83.34, 24.93]	-15.05	[-45.24, 15.15]
Year Two (N = 27,445)	-6.82	[-52.50, 38.86]	-25.21	[-57.51, 7.09]
Year Three (N = 26,454)	-23.90	[-76.57, 28.76]	-56.67*	[-87.14, -26.20]
Overall (N = 33,393)	-16.68	[-64.96, 31.60]	-33.49*	[-62.20, -4.78]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 26,461)	23.97*	[8.88, 39.07]	22.61*	[8.99, 36.23]
Year Two (N = 27,445)	23.34*	[6.60, 40.09]	28.62*	[14.78, 42.45]
Year Three (N = 26,454)	40.20*	[18.83, 61.57]	41.91*	[25.47, 58.35]
Overall (N = 33,393)	28.89*	[13.03, 44.75]	30.65*	[17.03, 44.27]

(continued)

Table 7-13 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 23,948)				
1st quintile	-0.23	[-2.77, 2.32]	-1.08	[-3.39, 1.23]
5th quintile	0.20	[-2.08, 2.48]	1.09	[-1.26, 3.45]
Year Two (N = 18,608)				
1st quintile	-1.60	[-3.69, 0.50]	-1.76	[-4.03, 0.51]
5th quintile	1.37	[-0.38, 3.12]	1.75	[-0.50, 3.99]
Year Three (N = 12,784)				
1st quintile	-2.56	[-5.32, 0.20]	-2.43	[-4.97, 0.11]
5th quintile	2.09	[-0.04, 4.22]	2.31	[-0.10, 4.73]
Overall (N = 26,543)				
1st quintile	-1.22	[-3.56, 1.11]	-1.62	[-3.88, 0.64]
5th quintile	1.03	[-0.95, 3.01]	1.59	[-0.66, 3.84]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 3,488)	14.33	[-47.02, 75.67]	1.39	[-30.49, 33.27]
Year Two (N = 3,677)	11.53	[-38.51, 61.57]	12.51	[-22.60, 47.62]
Year Three (N = 3,091)	-7.06	[-84.06, 69.93]	-18.63	[-61.57, 24.31]
Overall (N = 8,159)	6.85	[-40.69, 54.39]	-0.66	[-30.62, 29.31]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 4,238)	12.22	[-14.48, 38.92]	13.60	[-0.80, 27.99]
Year Two (N = 4,485)	12.36	[-14.90, 39.63]	9.60	[-7.61, 26.81]
Year Three (N = 3,896)	0.36	[-30.50, 31.22]	0.34	[-16.93, 17.60]
Overall (N = 9,706)	8.60	[-14.83, 32.02]	8.06	[-2.14, 18.27]
COC Index (higher quintile = better COC)				
Year One (N = 27,869)				
1st quintile	0.43	[-0.63, 1.49]	-0.08	[-1.07, 0.91]
5th quintile	-0.53	[-1.86, 0.80]	0.09	[-1.05, 1.23]
Year Two (N = 22,276)				
1st quintile	1.05	[-0.44, 2.54]	0.24	[-1.48, 1.96]
5th quintile	-1.23	[-2.97, 0.50]	-0.26	[-2.11, 1.59]

(continued)

Table 7-13 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better COC) (continued)				
Year Three (N = 15,779)				
1st quintile	-1.24	[-3.35, 0.87]	-1.44	[-3.15, 0.27]
5th quintile	1.30	[-0.84, 3.44]	1.43	[-0.25, 3.10]
Overall (N = 29,673)				
1st quintile	0.24	[-0.96, 1.44]	-0.30	[-1.49, 0.89]
5th quintile	-0.33	[-1.70, 1.04]	0.29	[-0.98, 1.57]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 person quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found little evidence that the North Carolina MAPCP Demonstration affected the access to care and care coordination measures, with the exception of rates of medical specialist and surgical specialist visits. Specifically, **Table 7-13** shows the following:

- The *overall* rate of **medical specialist visits** decreased among North Carolina MAPCP Demonstration Medicare beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- The *overall* rate of **surgical specialist visits** increased among North Carolina MAPCP Demonstration Medicare beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices.

No statistically significant *overall* impacts were observed for the measures of primary care visits, primary care visits as a percentage of total visits, follow-up visits within 14 days after discharge, 30-day unplanned readmissions, and continuity of care.

Table 7-14
North Carolina: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries:
Six quarters of MAPCP Demonstration

Outcome	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits										
Year One	11,436	2.50	[-1.30, 6.31]	-1.03	[-3.24, 1.19]	7,763	0.82	[-2.97, 4.61]	1.35	[-1.19, 3.89]
Year Two	9,824	0.55	[-3.24, 4.34]	6.00	[-2.70, 14.70]	6,263	-2.76	[-6.52, 1.00]	-0.99	[-4.86, 2.88]
Overall	11,997	1.83	[-1.42, 5.08]	1.40	[-1.14, 3.94]	8,414	-0.44	[-3.64, 2.76]	0.53	[-2.25, 3.31]
Medical specialist visits										
Year One	11,436	0.29	[-0.34, 0.93]	-0.22	[-0.63, 0.18]	7,763	0.89	[-1.52, 3.31]	-0.61	[-1.84, 0.61]
Year Two	9,824	0.51	[-0.38, 1.40]	0.25	[-0.22, 0.71]	6,263	1.00	[-2.08, 4.08]	-1.27	[-2.68, 0.14]
Overall	11,997	0.37	[-0.33, 1.07]	-0.06	[-0.43, 0.30]	8,414	0.93	[-1.66, 3.52]	-0.85	[-2.07, 0.38]
Surgical specialist visits										
Year One	11,436	0.17	[-0.17, 0.50]	0.38	[-0.17, 0.92]	7,763	0.61	[-0.80, 2.02]	1.09	[-0.15, 2.33]
Year Two	9,824	0.34	[-0.27, 0.95]	0.72	[-0.34, 1.78]	6,263	3.89	[-0.27, 8.04]	2.88*	[0.20, 5.57]
Overall	11,997	0.23	[-0.19, 0.65]	0.50	[-0.22, 1.21]	8,414	1.76	[-0.31, 3.82]	1.72*	[0.04, 3.40]
Primary care visits as percentage of total visits (% PC)										
Overall										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	2,456	2.16	[-4.25, 8.58]	-0.67	[-3.13, 1.78]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		-0.28	[-1.06, 0.49]	-0.05	[-0.25, 0.16]
% PC = 100%		N/A	N/A	N/A	N/A		-1.88	[-7.56, 3.80]	0.72	[-1.93, 3.36]

(continued)

Table 7-14 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care
among Medicaid beneficiaries:
Six quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions										
Year One	N/A	N/A	N/A	N/A	N/A	1,000	2.47*	[0.15, 4.79]	-1.00	[-3.00, 1.00]
Year Two	N/A	N/A	N/A	N/A	N/A	328	-1.74	[-8.41, 4.93]	4.54	[-0.41, 9.49]
Overall	N/A	N/A	N/A	N/A	N/A	1,222	1.57	[-0.53, 3.67]	0.19	[-1.94, 2.31]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. The demonstration period for this report includes 6 quarters, but because this outcome is an annual measure, only the first 4 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared to the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult and children Medicaid beneficiaries, we found little evidence that the North Carolina MAPCP Demonstration affected the access to care and care coordination measures, with the exception of surgical specialist visits among Medicaid adults. Specifically, **Table 7-14** shows the following:

- Among Medicaid adults, the *overall* likelihood of having **surgical specialist visits** increased among North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to non-PCMH practices.

Among Medicaid adults, no statistically significant *overall* impacts were observed for the measures of primary care and medical specialist visits, primary care visits as a percentage of total visits, and 30-day unplanned readmission. Among Medicaid children, no statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits.

7.4.3 Discussion of Access to Care and Coordination of Care

Most MAPCP Demonstration practices in North Carolina had several processes and procedures in place to enhance access to care before the start of the North Carolina MAPCP Demonstration. During the demonstration, practices continued to provide open-access dedicated time for same-day appointments, after-hours and weekend care, and telephone nurse triage services. Few providers improved this availability for after-hours care during the demonstration. Thus, access to primary care remained fairly constant. Furthermore, alternative means of communication were limited, with few North Carolina practices reporting that they provided alternative types of contact (such as e-mail) and few patients reporting that they made use of the patient portal. Given that there were few changes in access to primary care during the MAPCP Demonstration, it was not surprising that we found no statistically significant evidence that primary care visits increased for the North Carolina MAPCP Demonstration beneficiaries compared to those in PCMH and non-PCMH practices. In addition, all patient populations participating in the focus groups said they had limited access to care during evenings, weekends, or holidays and were not aware of resources available to them.

Increasing access to specialty care was a focus of the North Carolina practices, with some practices using the MAPCP Demonstration fees to bring specialists into their rural practice areas for one or two days per week. Many focus group participants reported that their providers helped with referrals to specialists, and some noted that specialist referrals had increased. This focus on improving specialty care access may explain why the rate of surgical specialists increased for adults Medicaid beneficiaries in MAPCP Demonstration practices (compared to non-PCMH practices) and for Medicare beneficiaries in MAPCP Demonstration practices (compared to both PCMH and non-PCMH practices).

We found no evidence that the MAPCP Demonstration led to an improvement in our measures of access to care. This lack of improvement might be attributed to several factors. First, access to care in rural areas is more challenging because of great distances and shortages of providers; such challenges cannot be overcome easily or in a short period of time. Second, many practices said that they already had most of the processes in place prior to the start of the MAPCP Demonstration. Therefore, while some improvements were made, they might not have

been extensive, making it less likely that we would observe improvements in our access to care measures during the evaluation period.

Site visit interviewees, beneficiary survey respondents, and focus group participants indicated that patients and caregivers were not aware of and not educated about after-hours and extended-hours services, even when they were in place, so they did not use them and continued seeking services at the hospital after hours.

Outreach by care managers increased during the demonstration period but remained limited to a fraction of the demonstration patient population, because each care manager was able to assist only a limited number of practices and patients. Further, the majority of the patients they served were among the most difficult to influence, because the care managers targeted complex patients with multiple comorbidities, significant socioeconomic constraints, and behavioral health diagnoses.

7.5 Beneficiary Experience with Care

This section describes the changes practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (*Section 7.5.1*); beneficiaries' experiences with key aspects of their care, such as communicating with providers, accessing care, getting help with self-managing their chronic conditions, and being involved in shared decision-making about treatment (*Section 7.5.2*); and a synthesis of these findings (*Section 7.5.3*). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

7.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

During the first year of the demonstration, CCNC nurse care managers initiated activities to connect patients to community resources, enhance access to care, and encourage self-management and active participation in decisions about care. These activities include connecting patients with transportation services, food banks, and disease-specific education classes; providing CCNC self-management toolkits to patients; and assisting patients with making appointments. Many nurse care managers completed training on motivational interviewing and palliative care to enhance activities for advance care planning with aging patients. These activities are particularly important for the engagement of Medicare beneficiaries and their caregivers in long-term care decisions. In addition, several practices reported that they worked to enhance communication with patients regarding their care, including telephone follow-up for specialist appointments, lab work, test results, and preventive screening reminders.

In the second and third years of the demonstration, care managers continued to provide care management services in local practices, patient homes, and by phone. These services focused on improving patients' overall experience with care. Care managers encouraged self-management and patient participation in care decisions, conducted home or hospital visits, assisted patients with transportation and appointment scheduling, provided medication reconciliation, and educated patients about resources available in the health care system and their community. Many interviewees discussed the efforts of care managers to engage patients in self-management and shared decision-making through the use of self-management notebooks and

chronic disease education, both one-on-one and in classes. Despite these efforts, practice and network interviewees recognized that, overall, beneficiary experiences did not change much as a result of the demonstration, in part because of the difficulty in getting patients to change customary behaviors.

7.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of the North Carolina MAPCP Demonstration. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. Beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

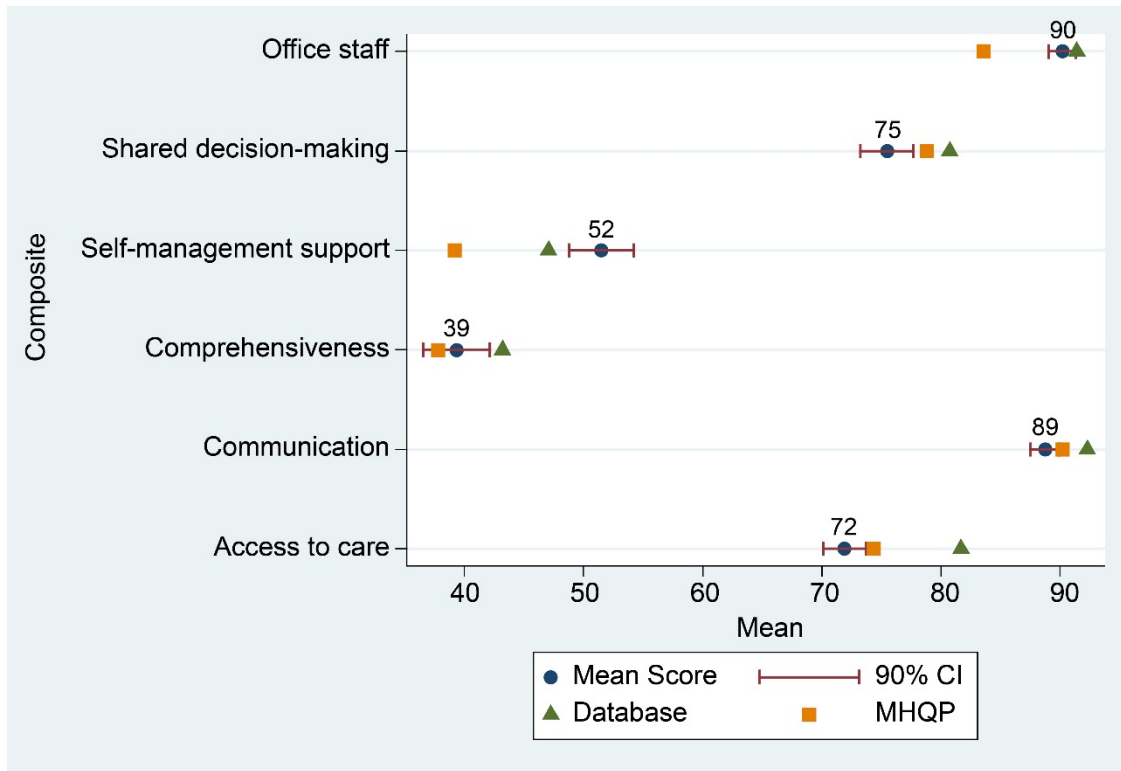
Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner
- *Self-management support.* Two yes/no questions about goal setting and barriers to care
- *Shared decision making.* Three items regarding medication use
- *Office staff.* Two items about interactions with medical practice office staff
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 7-2** contains the composite scales of North Carolina and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.⁶ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

⁶ The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study was the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 7-2
North Carolina's CAHPS PCMH survey composite measures
compared to two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

North Carolina scores were significantly higher than both benchmarks for self-management. The state also achieved a score in between the two benchmarks on comprehensiveness and office staff interactions. North Carolina, however, fared slightly worse (below both benchmarks) on access, communication, and shared decision-making composite scales.

Communication. On the basis of Medicare FFS beneficiaries' responses to our survey, North Carolina MAPCP Demonstration practices earned an adjusted score of 89 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (**Figure 7-2**). This composite reflects that:

- 94 percent of respondents felt that their providers usually or always knew the important information from their medical history;
- 94 percent believed that their providers usually or always listened carefully to them;
- 96 percent felt that their providers usually or always showed respect for what they had to say;

- 93 percent said that their providers usually or always explained things in a way that was easy to understand;
- 93 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns; and
- 93 percent felt that their providers usually or always spent enough time with them.

Another related survey question revealed that 87 percent of Medicare FFS respondents said they spoke with someone from their provider's practice at each visit about all of the prescription medicines they were taking.

Our focus groups, which included not only Medicare FFS beneficiaries and their caregivers but also Medicaid beneficiaries, yielded similar findings—although some opposite views did emerge from a few participants. Below, we present focus group findings on the degree to which beneficiaries felt that their provider understands them and effectively communicates.

Provider understands them. As most North Carolina MAPCP Demonstration practices are in small rural communities, focus group participants said they had long-standing, caring relationships with their PCPs that is typical of small communities. Many focus group participants indicated that their providers had known them and their families for many years and lived in the same area, where “everybody knows everybody.” Most felt respected and understood, often noting that their PCP not only knew them as patients and as individuals, but also knew their family members. Focus group participants valued the longevity of their relationship with a PCP:

[During] one of the first interviews he [PCP] said, “What do you expect from me?” And I said, “I just want you to be the quarterback, and you stay with me till the end. I don’t want another doctor when I’m 78 years old who’s got to learn. I want the same one I’ve been dealing with.” He said, “I’ll do it. I’m here.”

In contrast, few dually eligible and Medicaid patients reported knowing their PCPs (and vice versa), which they attributed to difficulties in finding providers who take their insurance. These patients felt stigmatized because of their insurance status, with one Medicaid patient noting that “We are kind of [perceived] lower than normal people.” These participants said that they typically saw different providers during their visits and did not know them well.

Effectiveness of communication. Focus group participants described mixed experiences with communications with their PCPs. While some Medicare beneficiaries and their caregivers said they had clear and effective communication and felt that their providers took adequate time during their visit to discuss all the issues, others felt that their providers were not listening:

I feel like my doctor usually uses language that I can understand, and I feel like I can talk to her [PCP] about anything that I want to and she will be interested in what I have to say and explain anything to me that I need explained.

He [PCP] doesn't listen to what I say. I'll say something, and his agenda is get me out of there. That's it. And I'll say something to get his attention where he may not think that I'm asking something, and I'll ask a question and I realize he's not listening.

I'm really appreciative of my dad's doctor because she will listen to me. My dad was having a hard time. He was on cholesterol medicine and was having side effects from it. I had read where a health product called red yeast rice worked with some individuals. My dad's doctor was actually willing to give it a try and see if it worked for him, and it does. I was just really appreciative that she was willing to listen and not kind of write me off as some kind of health nut or something.

The experiences of dually eligible and some Medicaid patients were much more negative. Many said that they felt rushed during their visits. Several felt that their PCPs were dismissive of their emotional or mental health needs. Several dually eligible and Medicaid participants said that they felt stigmatized and perceived as seeking pain medications that they can sell on the street when seeking treatment for their conditions.

Well, they're already assuming I'm there to just get the drugs. That has been my experience not just recently.... I was a single mother with two boys growing up, so they've always had the Medicaid services. We've always been treated like that.

Dually eligible and Medicaid patients reported having less clear communication with their providers. In contrast to Medicare patients, several dually eligible and Medicaid patients indicated that, when they had a hard time understanding their provider, they were uncomfortable asking for clarification:

Well, I had to have an operation and they were sending me ... to this doctor and I said, "Mm-hmm. But what you going to do?" And she [PCP] said some kind of words, and I still don't know what to do, how to pronounce the word, and I don't know what it meant. But I had the operation done. I don't know if they did it right because I'm still hurting.

That's another big thing with diabetics. They use all them all fancy words. I didn't go to college, and I don't understand them. [Moderator: And what do you do when that happens?] I just "Mm-hmm, mm-hmm, mm-hmm."

Focus group participants representing all payers indicated that their providers used too much hard-to-understand medical jargon:

Just like my doctor said, "You got a blockage in your subclavian artery. Well, number one, that scared me. But, number two, where? Where in my body is the subclavian artery? I didn't know. And I said, "Point it out to me." But he said it like I should know.

Access to care. As described in further detail in *Section 7.4.1*, most patients perceived that providers at their North Carolina MAPCP Demonstration practices were accessible for routine and urgent care, but access on evenings and weekends was more limited. In the CAHPS PCMH survey of patients age 65 and older, North Carolina MAPCP Demonstration practices earned a weighted mean composite score of 72 out of 100 on a multiquestion composite scale

that measures how easily patients can access their primary care practices (**Figure 7-2**), which was significantly lower than one of the benchmarks.

Self-management support. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, North Carolina MAPCP Demonstration practices earned a weighted score of 52 out of 100 on a multiquestion composite scale that assesses the degree to which practices offered patients self-management support (**Figure 7-2**). This composite reflects that

- 64 percent of respondents had practice staff who talked to them about specific health goals; and
- 38 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

None of the focus group participants recalled having a care plan. Most participants cited receiving help from their PCPs with weight loss, smoking cessation, and diabetes management. Several indicated that their PCP helped them to identify wellness and exercise programs, nutritional services, and even spiritual resources, which made their care holistic:

My dad's doctor has been great about suggesting things, aids that would help him, like a knee brace. She has been good about suggesting and telling me the sources where I can get things, mechanical things that will make his life a little easier.

He [doctor] referred me to a spiritual lady that he knew. She does yoga.... I don't want to get my mind into the mental state that I'm disabled at 46 years old.... I am trying not to think that way, so he is trying to keep my thoughts positive.

She [doctor] made sure that I had that machine so I could check my diabetes. And she... told me to check my blood pressure and bring the report back... with me so they could look over it.

A few dually eligible and Medicaid patients shared less positive experiences, noting that they were not receiving the services or resources that they needed:

The two things that I'm most disappointed in the system is diet and exercise.... Nothing has been said to either one of us about diet, especially me being diabetic—I was just handed a pamphlet.

I can't even get a pair of diabetic shoes.... I can't even get my doctor who I've been going to forever to sign her name on a piece of paper so I can get my shoes.... It's been two months that I've been trying to get her sign her name on the dotted line.

Shared decision making. North Carolina MAPCP Demonstration practices earned a score of 75 out of 100 on a composite that assesses the degree to which practices engage in shared decision-making with patients (**Figure 7-2**). This composite reflects that

- 93 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication;

- 82 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication; and
- 75 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Most focus group participants indicated that they had a shared relationship with their doctors in decision making. Most described their doctors as involved and attentive, and appreciated that their doctors discussed and suggested things instead of telling what needed to be done and that they had to do it: “They discuss it and ask how you feel about it, and I like that.” Some were comfortable in challenging their providers’ advice and pushing back:

[My doctor] said, “You need a total hip replacement.” I said, “Let me tell you something.... I come in with a hip, and I am going out with a hip.” He said, “Case closed.” I have a hip, and when I die I’m going to take this hip with me. And that’s the way I talk to my doctor.

Caregivers felt included and involved in decision making as well, though some noted that sometimes providers relied on them too much, which resulted in the disengagement of patients who were perfectly capable of participating in decision making themselves.

Office staff. North Carolina MAPCP Demonstration practices earned a score of 90 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks (**Figure 7-2**). When asked to give a global rating of their provider, 89 percent of North Carolina Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. Half (50%) gave their provider the highest possible rating—10 out of 10.

Focus groups participants had diverse experiences with office staff. Some reported having very good relationships and described office staff at the practices as caring and attentive. A few others felt that front office staff did not care about them and were concerned with keeping patients away from the doctor.

7.5.3 Discussion of Beneficiary Experience with Care

CCNC nurse care managers reported implementing a variety of protocols and resources to improve beneficiary experience with care during the North Carolina MAPCP Demonstration. The focus was on enhancing communication regarding their care, including telephone follow-up for specialist appointments, lab work, test results, and preventive screening reminders, as well as providing home visits and more telephone contact for care management. These efforts appeared to pay off, with more than 90 percent of CAHPS PCMH survey respondents indicating that they believed that their providers listened carefully to them, showed respect for what they had to say, and explained things in a way that was easy to understand. However, focus group results were mixed among Medicare participants and caregivers and quite negative among dually eligible beneficiaries. Dually eligible participants reported being rushed, dismissed, and stigmatized during their visits.

North Carolina MAPCP Demonstration beneficiaries responding to the CAHPS PCMH survey rated their providers highly in the area of self-management support, compared to the benchmark ratings. Many focus group participants also reported receiving advice from their providers on disease management and improving health behaviors, although that positive feedback was not universal among participants.

In the area of shared decision making, North Carolina MAPCP Demonstration providers scored comparably to the benchmarks, and focus group participants reported that they were included in decision making for their health care.

7.6 Effectiveness (Utilization and Expenditures)

This section describes the savings North Carolina expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees' views on the likelihood of these savings materializing (**Section 7.6.1**), impacts on service utilization and expenditures (**Section 7.6.2**), a decomposition of the impacts on expenditures (**Section 7.6.3**), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (**Section 7.6.4**), and a synthesis of these findings (**Section 7.6.5**).

7.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

According to its MAPCP Demonstration application, North Carolina estimated that Medicare was going to achieve savings of approximately \$37 million (\$25.2 million net of payments to practices and networks) over the course of the demonstration. The identified savings were to be generated in three key areas: (1) reduced inpatient hospital readmission rate, (2) reduced inpatient hospital admission rate for potentially preventable hospitalizations, and (3) reduced unnecessary ER use.

State, network, and provider interviewees identified a range of activities expected to affect utilization and costs in MAPCP Demonstration practices. Expanded access to care outside regular business hours and same-day scheduling were expected to reduce unnecessary ER utilization. During Years Two and Three, state staff also focused on increasing the number of patients involved with care managers and anticipated that extending care management services to Medicare beneficiaries was likely to have the largest impact on utilization and expenditures because those services targeted patients with frequent ER visits and hospital stays. Network staff discussed care managers' efforts to coordinate discharge planning with the local hospitals, such as hospital staff contacting the practices after discharges to provide information regarding medications prescribed in the hospital and to schedule follow-up appointments with the PCP for the discharged patient.

Despite these efforts, several network and practice staff reported several reasons that practices might not observe improving utilization patterns. According to network staff and patients themselves, many continued to use the ER because they could not get to their primary care practice, did not understand that the ER was not appropriate for their specific care needs, or were not aware of alternative resources. In addition, as discussed in **Section 7.5.1**, access to care also played a role in ER use. For many focus group participants, the ER was the only place to go if they got sick at night and on weekends. Some patients went to the ER during regular office

hours after being informed by their provider, or out of their own concern, that a practice was too full or did not have an available provider

One practice used Provider Portal data to flag its high ER users' charts, so that staff would schedule an appointment as soon as possible when the patient called, though they were not always successful in doing so. Another practice did not focus on high ER utilization and inpatient rates because they did not get information on admitted patients directly from the hospital, and because the learning curve for understanding the system that would provide that information directly from the hospital would be steep. Others felt that the short time frame of the demonstration was insufficient to show any decrease in inpatient and ER utilization or expenditures because changing patient utilization patterns takes time. Further, some interviewees believed that care management efforts were more likely to increase some types of utilization, and thus expenditures, because some patients were now receiving needed care to which they previously did not have access.

7.6.2 Impacts on Utilization and Expenditures

The MAPCP Demonstration was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the MAPCP Demonstration and two CGs: PCMHs and non-PCMHs.

- **Table 7-15** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.
- **Table 7-16** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared to the CG, whereas a positive value corresponds to *greater growth* in expenditures compared to the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

- **Table 7-17** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries.
- **Table 7-18** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries.

For Medicare, estimates in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, and a *positive* value corresponds to an *increase* in the rate of events compared to the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly

Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the *overall* estimate for these measures included all 13 quarters of data. Because of a change in its MMIS in 2013, North Carolina was able to provide Medicaid enrollment and claims data only through March 2013 (first 2 quarters of Year Two), so we were limited to 6 quarters of Medicaid data. Not all services identified in the Medicare claims could be readily identified in the Medicaid claims, so we limit the analysis of Medicaid expenditures to total Medicaid, acute-care, ER, specialty care, primary care, prescription drugs, and long-term care expenditures.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 7.6.5**.

Table 7-15
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 26,461)	-5.47	[-55.41, 44.48]	3.19	[-45.49, 51.88]
Year Two (N = 27,445)	9.19	[-36.29, 54.67]	12.31	[-22.27, 46.88]
Year Three (N = 26,454)	1.17	[-51.60, 53.93]	38.96	[-1.57, 79.49]
Overall (N = 33,393)	10.49	[-33.45, 54.43]	20.13	[-15.91, 56.18]
Overall Aggregate	\$8,833,919		\$16,958,674	
Acute-care				
Year One (N = 26,461)	0.91	[-23.15, 24.97]	-8.94	[-39.15, 21.28]
Year Two (N = 27,445)	-4.98	[-29.62, 19.65]	-0.80	[-20.06, 18.46]
Year Three (N = 26,454)	-4.86	[-26.92, 17.21]	12.13	[-5.33, 29.59]
Overall (N = 33,393)	1.38	[-19.08, 21.85]	2.13	[-15.80, 20.07]
Overall Aggregate	\$1,164,933		\$1,798,259	
Post-acute-care				
Year One (N = 26,461)	-2.60	[-14.10, 8.89]	3.84	[-4.98, 12.65]
Year Two (N = 27,445)	4.45	[-6.39, 15.30]	7.28*	[0.32, 14.24]
Year Three (N = 26,454)	-3.34	[-19.20, 12.51]	11.55*	[2.44, 20.66]
Overall (N = 33,393)	1.38	[-8.56, 11.33]	7.33*	[0.78, 13.88]
Overall Aggregate	\$1,165,367		\$6,175,025*	

(continued)

Table 7-15 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 26,461)	1.54	[-2.93, 6.01]	1.10	[-1.41, 3.61]
Year Two (N = 27,445)	1.42	[-2.52, 5.37]	2.11*	[0.29, 3.93]
Year Three (N = 26,454)	0.48	[-4.41, 5.36]	0.40	[-2.62, 3.42]
Overall (N = 33,393)	1.27	[-2.75, 5.29]	1.27	[-0.73, 3.26]
Overall Aggregate	\$1,067,983		\$1,068,974	
Outpatient				
Year One (N = 26,461)	-3.63	[-16.58, 9.32]	3.95	[-3.88, 11.79]
Year Two (N = 27,445)	7.77	[-3.00, 18.55]	8.94*	[2.63, 15.25]
Year Three (N = 26,454)	2.78	[-8.84, 14.39]	7.35	[-2.48, 17.19]
Overall (N = 33,393)	3.42	[-6.83, 13.66]	6.99*	[0.75, 13.23]
Overall Aggregate	\$2,876,784		\$5,889,638*	
Specialty physician				
Year One (N = 26,461)	1.61	[-5.83, 9.06]	-2.43	[-9.07, 4.21]
Year Two (N = 27,445)	3.89	[-2.76, 10.55]	-4.53	[-13.87, 4.82]
Year Three (N = 26,454)	2.88	[-4.60, 10.36]	-3.73	[-12.59, 5.13]
Overall (N = 33,393)	3.34	[-3.22, 9.91]	-3.22	[-11.22, 4.77]
Overall Aggregate	\$2,816,669		-\$2,713,168	
Primary care physician				
Year One (N = 26,461)	-1.69	[-5.37, 2.00]	0.01	[-3.23, 3.25]
Year Two (N = 27,445)	-0.74	[-4.36, 2.89]	-0.49	[-4.23, 3.25]
Year Three (N = 26,454)	-0.10	[-4.64, 4.43]	0.46	[-3.89, 4.81]
Overall (N = 33,393)	-0.65	[-4.66, 3.36]	0.05	[-3.82, 3.91]
Overall Aggregate	-\$550,045		\$39,752	
Home health				
Year One (N = 26,461)	-1.04	[-4.42, 2.35]	2.87*	[0.50, 5.23]
Year Two (N = 27,445)	-1.87	[-5.14, 1.40]	0.58	[-2.31, 3.46]
Year Three (N = 26,454)	-0.04	[-3.93, 3.85]	3.65*	[0.36, 6.94]
Overall (N = 33,393)	-0.77	[-3.65, 2.10]	2.60*	[0.10, 5.09]
Overall Aggregate	-\$650,984		\$2,188,306*	
Other non-facility				
Year One (N = 26,461)	1.41	[-0.52, 3.34]	0.32	[-1.99, 2.63]
Year Two (N = 27,445)	-0.62	[-2.99, 1.75]	1.13	[-0.81, 3.08]
Year Three (N = 26,454)	-1.59	[-5.22, 2.04]	0.97	[-1.18, 3.13]
Overall (N = 33,393)	-0.15	[-2.25, 1.95]	0.89	[-0.95, 2.74]
Overall Aggregate	-\$124,838		\$751,338	

(continued)

Table 7-15 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Laboratory				
Year One (N = 26,461)	-2.78	[-7.08, 1.52]	-2.12	[-5.47, 1.22]
Year Two (N = 27,445)	-1.72	[-5.33, 1.89]	-2.70	[-5.90, 0.51]
Year Three (N = 26,454)	-2.05	[-7.73, 3.62]	-1.67	[-6.28, 2.94]
Overall (N = 33,393)	-1.98	[-6.07, 2.11]	-2.10	[-5.66, 1.47]
Overall Aggregate	-\$1,668,039		-\$1,766,930	
Imaging				
Year One (N = 26,461)	-0.99	[-2.94, 0.96]	-0.58	[-1.99, 0.83]
Year Two (N = 27,445)	-1.07	[-3.12, 0.99]	-1.22	[-2.93, 0.50]
Year Three (N = 26,454)	-0.30	[-2.30, 1.69]	-0.83	[-2.52, 0.85]
Overall (N = 33,393)	-0.69	[-2.62, 1.24]	-0.85	[-2.40, 0.69]
Overall Aggregate	-\$578,453		-\$719,826	
Other facility				
Year One (N = 26,461)	0.03	[-0.02, 0.08]	0.00	[-0.06, 0.06]
Year Two (N = 27,445)	0.05	[-0.01, 0.11]	0.05*	[0.00, 0.11]
Year Three (N = 26,454)	0.02	[-0.02, 0.07]	0.03	[-0.01, 0.06]
Overall (N = 33,393)	0.03	[-0.01, 0.08]	0.03	[-0.01, 0.06]
Overall Aggregate	\$27,806		\$23,164	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to *lower* growth in expenditures compared to the CG. A *positive* value corresponds to *greater* growth compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that the North Carolina MAPCP Demonstration affected some expenditure outcomes, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 7-15** shows the following:

- There was no statistically significant difference in the *overall* growth of **total Medicare expenditures** among beneficiaries in North Carolina MAPCP Demonstration practices relative to beneficiaries in PCMH practices or non-PCMH practices.
- The growth in *overall aggregate post-acute-care expenditures* was \$6.2 million faster among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate outpatient expenditures* was \$5.9 million greater for Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate home health expenditures* was \$2.2 million greater for Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for expenditures for ER visits not leading to hospitalization, specialty physician expenditures, primary care physician expenditures, other non-facility expenditures, laboratory expenditures, imaging expenditures, or other facility expenditures.

Table 7-16
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Six quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid										
Year One	11,436	12.08	[-4.22, 28.38]	9.47	[-4.56, 23.51]	7,763	-4.22	[-58.23, 49.80]	15.64	[-9.78, 41.07]
Year Two	9,824	25.27	[-5.39, 55.94]	18.35*	[3.65, 33.05]	6,263	20.16	[-21.04, 61.35]	45.77*	[19.29, 72.24]
Overall	11,997	16.64	[-3.93, 37.20]	12.54*	[0.12, 24.96]	8,414	4.33	[-31.10, 39.75]	26.20*	[4.18, 48.22]
Overall Aggregate		\$2,588,177		\$1,950,301*			\$391,351		\$2,370,345*	
Acute-care										
Year One	11,436	0.75	[-3.37, 4.87]	-0.01	[-3.49, 3.47]	7,763	-0.39	[-8.71, 7.93]	5.08	[-0.75, 10.92]
Year Two	9,824	1.25	[-3.30, 5.79]	0.30	[-3.08, 3.68]	6,263	4.35	[-1.68, 10.38]	8.74*	[1.12, 16.36]
Overall	11,997	0.92	[-3.32, 5.16]	0.10	[-3.30, 3.50]	8,414	1.27	[-6.01, 8.55]	6.37*	[0.32, 12.41]
Overall Aggregate		\$143,173		\$15,368			\$115,073		\$575,847*	
ER visits not leading to hospitalization										
Year One	11,436	1.16	[-0.49, 2.81]	0.65	[-0.88, 2.18]	7,763	-2.13	[-7.86, 3.60]	-1.58	[-4.38, 1.22]
Year Two	9,824	-0.70	[-2.30, 0.89]	-0.82	[-1.88, 0.23]	6,263	6.19*	[2.27, 10.12]	6.01*	[3.19, 8.83]
Overall	11,997	0.51	[-1.00, 2.03]	0.14	[-1.08, 1.36]	8,414	0.79	[-3.82, 5.40]	1.08	[-1.30, 3.46]
Overall Aggregate		\$79,994		\$21,948			\$71,408		\$97,712	
Specialty physician										
Year One	11,436	0.31	[-1.46, 2.07]	-0.79	[-2.52, 0.94]	7,763	1.40	[-2.84, 5.64]	2.15	[-1.93, 6.24]
Year Two	9,824	0.65	[-1.33, 2.62]	-1.05	[-2.95, 0.84]	6,263	2.63	[-1.55, 6.80]	3.84	[-0.27, 7.94]
Overall	11,997	0.42	[-0.94, 1.79]	-0.88	[-2.26, 0.49]	8,414	1.83	[-1.60, 5.27]	2.74	[-1.09, 6.57]
Overall Aggregate		\$65,944		-\$137,097			\$165,658		\$248,223	

(continued)

Table 7-16 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Six quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care physician										
Year One	11,436	0.74	[-1.65, 3.13]	-1.26	[-3.71, 1.19]	7,763	2.47	[-2.68, 7.62]	-0.96	[-4.30, 2.38]
Year Two	9,824	-0.21	[-2.91, 2.49]	-0.55	[-3.71, 2.61]	6,263	4.47	[-1.11, 10.05]	1.38	[-2.95, 5.71]
Overall	11,997	0.41	[-1.97, 2.79]	-1.02	[-3.49, 1.46]	8,414	3.17	[-1.42, 7.76]	-0.14	[-3.57, 3.28]
Overall Aggregate		\$64,121		-\$158,088			\$286,798		-\$12,887	
Prescription drugs										
Year One	11,436	0.38	[-1.43, 2.19]	-0.14	[-1.37, 1.08]	7,763	-6.92	[-18.45, 4.62]	-8.96*	[-16.17, -1.75]
Year Two	9,824	8.85*	[4.82, 12.87]	2.04	[-1.86, 5.95]	6,263	-0.46	[-19.84, 18.91]	2.32	[-6.76, 11.40]
Overall	11,997	3.30*	[0.90, 5.70]	0.61	[-1.21, 2.43]	8,414	-4.66	[-15.36, 6.05]	-5.01	[-11.06, 1.05]
Overall Aggregate		\$513,499*		\$95,285			-\$421,151		-\$452,857	

(continued)

Table 7-16 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries:
Six quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Long-term care										
Year One	11,436	1.27	[-1.41, 3.95]	0.65	[-0.07, 1.37]	7,763	-3.93	[-9.78, 1.91]	-0.50	[-4.81, 3.82]
Year Two	9,824	2.27	[-1.58, 6.12]	1.52*	[0.40, 2.64]	6,263	-8.92*	[-16.60, -1.23]	-3.87	[-9.29, 1.55]
Overall	11,997	1.61	[-1.44, 4.67]	0.95*	[0.18, 1.71]	8,414	-5.68	[-11.98, 0.62]	-1.68	[-6.15, 2.78]
Overall Aggregate		\$251,047		\$147,379*			-\$513,868		-\$152,005	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- The second year of the demonstration in North Carolina includes only 2 quarters of data.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults based on the first 6 quarters of available data, we found evidence that the North Carolina MAPCP Demonstration affected some of the expenditure outcomes, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 7-16** shows the following:

- Among children, the growth in *overall aggregate* **total Medicaid expenditures** was \$2.0 million greater for Medicaid beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.
- Among children, the growth in *overall aggregate* **prescription drug expenditures** was approximately \$513,000 greater for Medicaid beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to PCMH practices.
- Among children, the growth in *overall aggregate* **long-term care expenditures** was \$147,000 greater for Medicaid beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.
- Among adults, the growth in *overall aggregate* **total Medicaid expenditures** was \$2.4 million greater for Medicaid beneficiaries in North Carolina MAPCP Demonstration practices relative to beneficiaries in non-PCMH practices.
- Among adults, the growth in *overall aggregate* **acute-care expenditures** was \$2.4 million greater for Medicaid beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to non-PCMH practices.

Among Medicaid children, no statistically significant *overall* impacts were observed for acute-care expenditures, expenditures for ER visits not leading to hospitalization, specialty physician expenditures, or primary care physician expenditures. Among Medicaid adults, no statistically significant *overall* impacts were observed for expenditures for ER visits not leading to hospitalization, specialty physician expenditures, primary care physician expenditures, prescription drug expenditures, or long-term care expenditures. Few changes in expenditures were expected given that North Carolina's CCNC program had been in place for some time for the Medicaid population before the start of the MAPCP Demonstration and the availability of only 6 quarters of Medicaid data.

Table 7-17
North Carolina: Comparison of average MAPCP Demonstration estimates for
utilization among Medicare beneficiaries:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 26,461)	1.88	[-4.52, 8.29]	-0.12	[-3.99, 3.76]
Year Two (N = 27,445)	1.49	[-5.47, 8.46]	2.74	[-0.63, 6.12]
Year Three (N = 26,454)	3.80	[-3.12, 10.72]	5.74*	[2.63, 8.86]
Overall (N = 33,393)	3.16	[-2.84, 9.16]	3.14*	[0.51, 5.77]
Overall Aggregate	887		881*	
ER visits not leading to hospitalization				
Year One (N = 26,461)	8.81	[-0.82, 18.43]	-1.64	[-9.47, 6.19]
Year Two (N = 27,445)	6.27	[-3.45, 15.99]	-1.74	[-9.35, 5.88]
Year Three (N = 26,454)	2.18	[-9.06, 13.41]	-0.58	[-9.17, 8.00]
Overall (N = 33,393)	5.55	[-3.72, 14.83]	-1.20	[-8.01, 5.61]
Overall Aggregate	1,560		-337	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found little evidence that the North Carolina MAPCP Demonstration changed the utilization, with the exception of all-cause admissions. Specifically, **Table 7-17** shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 881 among Medicare beneficiaries assigned to the North Carolina MAPCP Demonstration compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries for ER visits not leading to hospitalization.

Table 7-18

**North Carolina: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Six quarters of the MAPCP Demonstration**

Outcome	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions										
Year One	11,436	0.10	[-0.11, 0.30]	0.01	[-0.20, 0.23]	7,763	0.13	[-0.67, 0.92]	0.46	[-0.09, 1.01]
Year Two	9,824	0.08	[-0.11, 0.27]	0.03	[-0.14, 0.20]	6,263	0.74*	[0.06, 1.42]	0.61	[-0.11, 1.32]
Overall	11,997	0.09	[-0.10, 0.29]	0.02	[-0.18, 0.21]	8,414	0.34	[-0.35, 1.03]	0.51	[-0.03, 1.05]
Overall Aggregate		47		9			103		155	
ER visits not leading to hospitalization										
Year One	11,436	0.06	[-1.22, 1.34]	-0.30	[-1.31, 0.71]	7,763	-0.49	[-2.16, 1.17]	0.02	[-0.67, 0.72]
Year Two	9,824	-0.59	[-2.28, 1.09]	-2.11*	[-3.38, -0.83]	6,263	1.15	[-0.60, 2.91]	-0.22	[-1.04, 0.61]
Overall	11,997	-0.16	[-1.42, 1.09]	-0.92*	[-1.76, -0.09]	8,414	0.08	[-1.41, 1.58]	-0.06	[-0.69, 0.57]
Overall Aggregate		-85		-479*			26		-18	
Low birth weight admissions										
Overall	115	-0.17	[-0.51, 0.18]	0.14	[-0.13, 0.41]	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		0		0						

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found little evidence that the North Carolina MAPCP Demonstration changed the utilization, with the exception of ER visits not leading to hospitalization among children. Specifically, **Table 7-18** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** decreased by 479 among Medicaid child beneficiaries assigned to the North Carolina MAPCP Demonstration compared to beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among both child and adult beneficiaries for all-cause admissions and low birth weight.

7.6.3 Impacts on Utilization and Expenditures Target by State

In addition to the utilization and expenditure categories that are analyzed across all eight MAPCP Demonstration states, we also analyzed categories that North Carolina specifically expected to be affected by the demonstration, according to the state's application for the MAPCP Demonstration. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 7-19** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between beneficiaries assigned to North Carolina MAPCP Demonstration practices and two CGs: PCMHs and non-PCMHs. **Table 7-19** contains measures of expenditures for hospital professionals and ER professionals, as well as specific categories of utilization expected to be affected by the demonstration: evaluation and management (E&M) inpatient visits, E&M outpatient visits, imaging encounters, and laboratory encounters. (Details on these measures can be found in **Appendix D**.) Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data. A *negative* value corresponds to *lower growth* in expenditures, whereas a *positive* value corresponds to *greater growth*. Utilization estimates in this table are interpreted as the difference in the rate of utilization associated with the MAPCP Demonstration per 1,000 beneficiary quarters. A *negative value* corresponds to a *decrease* in the rate of events. A *positive* value corresponds to an *increase* in the rate of events. Estimates are presented overall for all quarters of the demonstration to date.

Table 7-19
North Carolina: Comparison of average MAPCP Demonstration estimates for selected expenditure and utilization measures among Medicare beneficiaries: Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 33,393)	0.09	[-2.77, 2.94]	0.95	[-0.62, 2.53]
ER professional expenditures Overall (N = 33,393)	0.37	[-0.43, 1.17]	0.04	[-0.70, 0.79]
E&M visits (inpatient) Overall (N = 33,393)	0.20	[-0.01, 0.40]	0.13	[-0.04, 0.30]
E&M visits (outpatient) Overall (N = 33,393)	29.98*	[4.29, 55.68]	15.89	[-15.04, 46.83]
Imaging Overall (N = 33,393)	1.62	[-56.74, 59.97]	-5.89	[-59.79, 48.01]
Laboratory Overall (N = 33,393)	-618.65	[-1521.02, 283.71]	-483.57	[-1268.46, 301.32]

NOTES:

- Hospital professional and ER professional are PBPM.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- E&M visits (inpatient), E&M visits (outpatient), imaging, and laboratory are rates per 1,000 beneficiary quarters.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. The demonstration period for this report includes 13 quarters, and all 13 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; E&M = evaluation and management; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found little evidence that the North Carolina MAPCP Demonstration decreased targeted expenditure or utilization outcomes. Specifically, **Table 7-19** shows the following:

- The *overall* estimate indicated that the North Carolina MAPCP Demonstration increased the rate of **E&M inpatient visits** among Medicare beneficiaries assigned to

North Carolina MAPCP Demonstration practices compared to beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for hospital professional expenditures, ER professional expenditures, E&M outpatient visits, imaging, or laboratory.

7.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in North Carolina relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics: gross savings, net savings, and return on fees. *Gross savings* represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, while *net savings* are gross savings minus the fees paid on behalf of Medicare. The *return on fees* equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in **Table 7-15** from **Section 7.6.2**. (See **Appendix C** for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from **Table 7-15**. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the following question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP Demonstration fees. Positive net savings estimates denote that either there were gross losses or the MAPCP Demonstration fees were greater than gross savings. The return on fees answers the following question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 7-20 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 13 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 7-20
North Carolina: Estimates of gross savings, fees paid, and net savings and return on fees

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	\$1,159,691	−\$9,435,496	\$11,754,879	\$1,905,552	−\$745,861	−\$11,341,048	\$9,849,326	0.61
Year Two	−\$2,240,178	−\$13,324,870	\$8,844,513	\$2,240,923	−\$4,481,101	−\$15,565,792	\$6,603,591	−1.00
Year Three	−\$252,550	−\$11,668,838	\$11,163,738	\$1,909,953	−\$2,162,503	−\$13,578,792	\$9,253,785	−0.13
Q13	−\$7,277,509*	−\$10,400,235	−\$4,154,783	\$468,388	−\$7,745,897*	−\$10,868,623	−\$4,623,171	−15.54
All Years	−\$7,674,949	−\$39,828,298	\$24,478,399	\$6,524,816	−\$14,199,765	−\$46,353,114	\$17,953,583	−1.18
Relative to non-PCMH comparison beneficiaries								
Year One	−\$677,751	−\$11,006,444	\$9,650,942	\$1,905,552	−\$2,583,303	−\$12,911,997	\$7,745,390	−0.36
Year Two	−\$2,999,384	−\$11,426,401	\$5,427,634	\$2,240,923	−\$5,240,306	−\$13,667,324	\$3,186,711	−1.34
Year Three	−\$8,429,753	−\$17,199,026	\$339,520	\$1,909,953	−\$10,339,706*	−\$19,108,980	−\$1,570,433	−4.41
Q13	−\$2,986,252*	−\$5,584,614	−\$387,890	\$468,388	−\$3,454,640*	−\$6,053,002	−\$856,278	−6.38
All Years	−\$14,733,773	−\$41,109,539	\$11,641,992	\$6,524,816	−\$21,258,589	−\$47,634,355	\$5,117,176	−2.26

NOTES:

- *Gross savings.* Estimated increase (or decrease) in per beneficiary per month Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- *Net savings.* The estimate of gross savings minus the total Medicare fees paid.
- *Fees.* Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- *Return on fees.* The estimate of gross savings divided by total Medicare fees paid.

PCMH = patient-centered medical home.

SOURCE: Medicare claims 2011:Q4–2014:Q4.

* Statistically significant at the 10 percent level.

In the analysis of Medicare budget neutrality relative to the PCMH CG, *Table 7-20* shows the following:

- The MAPCP Demonstration in North Carolina resulted in an estimated gross loss of \$7,674,949. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$6,524,816, which translates into an estimated net loss \$14,199,765 for Medicare. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net losses failed to achieve statistical significance in any individual year of the demonstration, but the losses were statistically significant in Quarter 13.

In the analysis of Medicare budget neutrality relative to the non-PCMH CG, *Table 7-20* shows the following:

- The MAPCP Demonstration in North Carolina resulted in an estimated gross loss of \$14,733,773. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$6,524,816, which translates into an estimated net loss \$21,258,589 for Medicare. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of net losses achieved statistical significance in Year Three, and estimates of gross and net losses achieved statistical significance in Quarter 13.

7.6.5 Discussion of Effectiveness

State, network, and provider interviewees identified a range of activities expected to affect utilization and costs in North Carolina MAPCP Demonstration practices. Practices improved access to care through 24-hour-a-day, 7-day-a-week access and same-day scheduling and integrated network care management services. Care management activities focused on patients with chronic conditions, with high utilization rates, and those discharged from the hospital or ER. By working with these patients to manage their conditions, educate them about appropriate use of the ER, and address nonclinical issues affecting their health, care managers expected to lower high-cost utilization, such as inpatient and ER use. These activities were expected to reduce the overall rate of expenditure growth, although many interviewees said that significantly changing utilization patterns could take several years.

However, there was no evidence that the North Carolina MAPCP Demonstration slowed the growth of total Medicare expenditures among MAPCP Demonstration beneficiaries relative to beneficiaries in either PCMH or non-PCMH practices. Thus, the North Carolina MAPCP

Demonstration was not budget neutral relative to either CG. In addition, there was no evidence that the MAPCP Demonstration significantly reduced total Medicaid expenditures for children or adults. In contrast to expectations, our results indicated significantly faster growth in total Medicaid expenditures comparing Medicaid children and adults attributed to MAPCP Demonstration practices to those attributed to non-PCMH practices, although, because of data limitations, this reflects only the first 6 quarters of the demonstration.

Although children enrolled in Medicaid had a lower rate of ER visits not leading to hospitalization relative to the non-PCMH CG, we observed no other significant reductions in rates of all-cause hospital admissions and ER visits, or in expenditures for those types of utilization, either for the Medicare population or the Medicaid population. This was consistent with focus group participants who reported that their providers were often unavailable on nights and weekends and so they had to seek care after hours in the ER (see **Section 7.4.1**). Some network and practice staff also reported little or no success in improving utilization patterns through their PCMH activities because of difficulties in altering patient behavior and using health IT proficiently to target patients with a history of inappropriate utilization. In addition, network care management capacity was limited by care management staff and case load size. As shown in **Table 7-1**, care managers were responsible for two to four practices' worth of patients. Thus, these services were provided to a fraction of MAPCP Demonstration beneficiaries and possibly were not provided at sufficient scale or targeted to maximize change in effectiveness measures.

Delays in processes for data sharing, in entering multi-payer data into CCNC's Informatics Center, and in the transition to a new Medicaid billing system also may have contributed to practices' difficulty identifying patients with unnecessary ER utilization and admissions. Site visit interviewees reported that they were still learning how best to use the many available health IT resources to identify opportunities to effectively target high-utilization beneficiaries with care management that could reduce unnecessary utilization.

7.7 Special Populations

This section describes efforts by practices or the overall North Carolina MAPCP Demonstration to target special patient populations (according to our interviews) (**Section 7.7.1**); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization (based on claims data) (**Section 7.7.2**); and a synthesis of these findings (**Section 7.7.3**).

7.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

North Carolina's initiative did not contain provisions to target any special populations. Care management and clinical pharmacy services available to participating MAPCP Demonstration practices, however, focused on high-risk subpopulations, including people at high risk for hospital readmission, those with multiple chronic conditions and polypharmacy, patients in care transitions, and beneficiaries who were dually eligible for Medicare and Medicaid. Because dually eligible beneficiaries often had many conditions or characteristics that made them high-risk populations, nurse care managers reported that, instead of offering specific interventions, they tried to manage the whole spectrum of the patient's health care needs.

While there were no specific interventions for behavioral health in North Carolina, the CAHPS PCMH survey did ask about behavioral health. On the basis of Medicare FFS beneficiaries' responses to this survey, North Carolina MAPCP Demonstration practices earned a weighted score of 39 out of 100 on a multiquestion composite scale that measures the degree to which practices ask about behavioral health issues (**Figure 7-2**). This composite reflects that

- 44 percent of respondents said their practice staff asked if they felt depressed;
- 42 percent reported that practice staff talked to them about things in their lives that worried or stressed them; and
- 31 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

7.7.2 Impacts on Special Populations

The North Carolina MAPCP Demonstration was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, with behavioral health conditions, with disabilities, or with a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid, who live in rural areas, or who belong to racial/ethnic minorities). Based on information from our site visits identifying differences in implementation of the demonstration across the four networks of practices, we also examine the changes associated with the North Carolina MAPCP Demonstration for each of the four networks separately.

For these special populations where we find a statistically significant negative association between the North Carolina MAPCP Demonstration and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 7-21** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 7-22** reports on changes in expenditures and utilization for Medicare beneficiaries attributed to practices in Network 2.
- **Table 7-23** reports on changes in total Medicaid expenditures for the special populations expected to be affected by the demonstration
- **Table 7-24** reports on changes in expenditures and utilization for Medicaid beneficiaries attributed to practices in Network 2.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower*

growth in expenditures compared to the CG, whereas a positive value corresponds to *greater growth* in expenditures compared to the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG, and a *positive* value corresponds to an *increase* in the rate of events compared to the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared to the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data. For dually eligible beneficiaries, we only examined total Medicare spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending. Only 6 quarters of Medicaid data were available for the MAPCP Demonstration period in North Carolina; the overall estimate for these measures includes all 6 quarters of data.

- **Tables 7-25** through **7-33** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 7-34** through **7-37** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 7.7.3**.

Table 7-21
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Thirteen quarters of the MAPCP Demonstration

Population	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 6,810)	18.77	[-98.73, 136.26]	10.33	[-122.00, 142.67]
Year Two (N = 6,436)	-41.23	[-183.30, 100.83]	2.37	[-72.84, 77.58]
Year Three (N = 5,562)	-57.12	[-208.83, 94.58]	97.17*	[27.53, 166.81]
Overall (N = 7,730)	-13.79	[-125.97, 98.39]	37.98	[-38.58, 114.54]
Overall Aggregate	-\$2,715,480		\$7,476,936	
Behavioral health conditions only				
Year One (N = 2,389)	-49.88	[-163.62, 63.87]	35.71	[-51.09, 122.51]
Year Two (N = 2,303)	-14.03	[-84.55, 56.49]	-12.69	[-73.13, 47.75]
Year Three (N = 2,075)	-20.87	[-138.84, 97.11]	30.44	[-61.48, 122.36]
Overall (N = 2,916)	-21.05	[-92.12, 50.01]	25.68	[-32.16, 83.51]
Overall Aggregate	-\$1,472,913		\$1,796,378	
Disabled beneficiaries only				
Year One (N = 8,244)	-11.69	[-75.38, 51.99]	-21.00	[-108.98, 66.98]
Year Two (N = 8,138)	-59.42	[-151.05, 32.21]	27.42	[-17.99, 72.83]
Year Three (N = 7,719)	-41.07	[-113.62, 31.48]	31.32	[-12.34, 74.97]
Overall (N = 10,156)	-27.80	[-85.77, 30.18]	18.88	[-28.49, 66.24]
Overall Aggregate	-\$7,156,271		\$4,859,948	
Dually eligible beneficiaries only				
Year One (N = 7,227)	15.05	[-78.16, 108.26]	67.32	[-5.56, 140.20]
Year Two (N = 6,993)	49.59	[-48.92, 148.10]	71.88*	[12.06, 131.69]
Year Three (N = 6,596)	41.24	[-66.74, 149.22]	92.42*	[32.10, 152.75]
Overall (N = 8,766)	39.54	[-43.46, 122.54]	79.76*	[26.08, 133.44]
Overall Aggregate	\$8,971,051		\$18,095,347*	
Rural beneficiaries only				
Year One (N = 19,377)	-32.27	[-97.88, 33.34]	33.22	[-39.91, 106.34]
Year Two (N = 19,384)	-17.60	[-83.95, 48.75]	54.11	[-8.07, 116.28]
Year Three (N = 18,750)	-11.12	[-86.70, 64.47]	59.94	[-1.78, 121.67]
Overall (N = 23,689)	-10.05	[-70.12, 50.02]	50.86	[-6.73, 108.46]
Overall Aggregate	-\$6,098,433		\$30,859,901	
Non-White beneficiaries only				
Year One (N = 5,128)	89.07*	[1.21, 176.93]	-43.31	[-179.19, 92.57]
Year Two (N = 5,148)	44.71	[-44.90, 134.32]	23.80	[-51.15, 98.75]
Year Three (N = 4,960)	133.90*	[35.18, 232.63]	95.64*	[21.02, 170.27]
Overall (N = 6,392)	91.86*	[16.25, 167.47]	24.44	[-57.35, 106.24]
Overall Aggregate	\$14,805,433*		\$3,939,627	
Network 1 and all comparisons				
Year One (N = 8,930)	-7.02	[-59.83, 45.79]	6.28	[-45.77, 58.32]
Year Two (N = 9,971)	-11.24	[-56.79, 34.31]	-7.17	[-41.30, 26.96]
Year Three (N = 9,621)	-12.98	[-63.34, 37.38]	25.73	[-11.91, 63.36]
Overall (N = 11,844)	-1.88	[-43.43, 39.67]	9.77	[-23.64, 43.18]
Overall Aggregate	-\$555,176		\$2,882,797	

(continued)

Table 7-21 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Thirteen quarters of the MAPCP Demonstration

Population	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Network 2 and all comparisons				
Year One (N = 3,784)	-124.41*	[-159.21, -89.62]	-119.09*	[-155.31, -82.86]
Year Two (N = 4,097)	-53.87*	[-91.37, -16.36]	-52.33*	[-73.03, -31.63]
Year Three (N = 4,012)	-85.75*	[-128.31, -43.18]	-48.75*	[-72.90, -24.61]
Overall (N = 4,854)	-71.42*	[-105.85, -36.98]	-63.31*	[-85.48, -41.14]
Overall Aggregate	-\$8,814,718*		-\$7,814,510*	
Network 3 and all comparisons				
Year One (N = 10,327)	35.50	[-23.88, 94.88]	48.87	[-7.14, 104.87]
Year Two (N = 9,645)	54.82	[-5.53, 115.18]	59.05*	[7.26, 110.84]
Year Three (N = 9,222)	39.83	[-24.40, 104.06]	79.56*	[25.53, 133.59]
Overall (N = 12,373)	50.38	[-3.12, 103.88]	62.49*	[16.15, 108.82]
Overall Aggregate	\$16,081,448		\$19,945,759*	
Network 4 and all comparisons				
Year One (N = 3,420)	-54.74*	[-105.77, -3.71]	-57.76*	[-107.21, -8.30]
Year Two (N = 3,732)	18.47	[-56.61, 93.54]	17.73	[-48.48, 83.94]
Year Three (N = 3,599)	31.50	[-15.71, 78.71]	66.06*	[36.59, 95.53]
Overall (N = 4,322)	12.14	[-34.68, 58.95]	16.37	[-19.97, 52.72]
Overall Aggregate	\$1,270,098		\$1,713,368	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries belonging to these special populations, we find no evidence that the MAPCP Demonstration slowed the growth of Medicare expenditures, with the exception of Medicare beneficiaries assigned to MAPCP Demonstration practices in Network 2. Specifically, **Table 7-21** shows the following:

- For **dually eligible beneficiaries**, the *overall aggregate* growth in total Medicare expenditures was \$18.1 million greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices than among dually eligible beneficiaries in non-PCMH practices.
- Among **non-White beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$14.8 million greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices than among non-White beneficiaries in PCMH practices.
- Among **beneficiaries attributed to North Carolina MAPCP Demonstration practices in Network 2**, the growth in *overall aggregate* total Medicare expenditures was \$8.81 million lower for beneficiaries assigned to North Carolina MAPCP Demonstration practices than among beneficiaries in PCMH practices and \$7.81 million lower than among beneficiaries in non-PCMH practices.
- Among **beneficiaries attributed to North Carolina MAPCP Demonstration practices in Network 3**, the growth in *overall aggregate* total Medicare expenditures was \$19.9 million greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices than among beneficiaries in non-PCMH practices.

No statistically significant *overall* impacts of the North Carolina MAPCP Demonstration on total Medicare expenditures were observed among beneficiaries with multiple chronic conditions, disabled beneficiaries, rural beneficiaries, and beneficiaries assigned to North Carolina MAPCP Demonstration practices in the Network 1 and Network 4. There was no evidence that the North Carolina MAPCP Demonstration slowed the growth of Medicare expenditures among the examined special populations, with the exception of beneficiaries attributed to MAPCP Demonstration practices in Network 2.

There were four practices in Transylvania County from Community Care of Western North Carolina (Network 2) that participated in the North Carolina MAPCP Demonstration. Because beneficiaries attributed to MAPCP Demonstration practices in Network 2 showed significantly lower rates of total Medicare expenditure growth, we examined additional expenditure and utilization outcomes to gain a better understanding of the lower expenditure growth. **Table 7-22** shows that the lower growth in total Medicare expenditures among beneficiaries assigned to MAPCP Demonstration practices in Network 2 was largely driven by lower growth in acute care expenditures, specialty physician expenditures, and primary care physician expenditures. Network 2 included an integrated health system that conducted concerted quality improvement activities throughout the demonstration period. Further, physicians in this Network were highly proficient with the system's EHR, in which all quality improvement activities and related communications were based.

Table 7-22
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
selected expenditure and utilization measures among Medicare beneficiaries attributed to
practices in Network 2:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare expenditures				
Year One (N = 3,784)	-124.41*	[-159.21, -89.62]	-119.09*	[-155.31, -82.86]
Year Two (N = 4,097)	-53.87*	[-91.37, -16.36]	-52.33*	[-73.03, -31.63]
Year Three (N = 4,012)	-85.75*	[-128.31, -43.18]	-48.75*	[-72.90, -24.61]
Overall (N = 4,854)	-71.42*	[-105.85, -36.98]	-63.31*	[-85.48, -41.14]
Overall Aggregate	-\$8,814,718*		-\$7,814,510*	
Acute-care expenditures				
Year One (N = 3,784)	-41.96*	[-58.71, -25.22]	-57.03*	[-85.33, -28.72]
Year Two (N = 4,097)	-33.62*	[-51.79, -15.44]	-31.14*	[-40.19, -22.09]
Year Three (N = 4,012)	-35.52*	[-52.89, -18.16]	-19.66*	[-29.81, -9.51]
Overall (N = 4,854)	-31.15*	[-46.22, -16.09]	-32.10*	[-43.53, -20.67]
Overall Aggregate	-\$3,845,216*		-\$3,961,942*	
ER visits not leading to hospitalization (expenditures)				
Year One (N = 3,784)	-1.58	[-5.62, 2.47]	-1.73*	[-3.06, -0.40]
Year Two (N = 4,097)	4.53*	[0.79, 8.26]	5.41*	[4.56, 6.25]
Year Three (N = 4,012)	8.30*	[4.23, 12.37]	8.40*	[7.40, 9.40]
Overall (N = 4,854)	4.90*	[1.23, 8.57]	5.12*	[4.31, 5.93]
Overall Aggregate	\$604,791*		\$631,993*	
Specialty physician expenditures				
Year One (N = 3,784)	-5.28	[-12.61, 2.05]	-10.40*	[-16.81, -3.98]
Year Two (N = 4,097)	-4.89	[-10.55, 0.77]	-13.13*	[-21.59, -4.68]
Year Three (N = 4,012)	-12.17*	[-17.53, -6.81]	-18.92*	[-26.00, -11.84]
Overall (N = 4,854)	-6.97*	[-12.52, -1.43]	-13.93*	[-21.10, -6.76]
Overall Aggregate	-\$860,728*		-\$1,719,674*	
Primary care physician expenditures				
Year One (N = 3,784)	-13.55*	[-15.82, -11.28]	-12.26*	[-13.82, -10.69]
Year Two (N = 4,097)	-11.38*	[-13.47, -9.29]	-11.36*	[-13.62, -9.09]
Year Three (N = 4,012)	-11.13*	[-14.21, -8.06]	-10.81*	[-13.52, -8.10]
Overall (N = 4,854)	-12.24*	[-14.73, -9.75]	-11.87*	[-14.10, -9.63]
Overall Aggregate	-\$1,511,074*		-\$1,464,779*	
All-cause admissions				
Year One (N = 3,784)	-3.11	[-7.19, 0.98]	-5.56*	[-8.19, -2.93]
Year Two (N = 4,097)	-0.91	[-5.96, 4.14]	-0.27	[-2.06, 1.52]
Year Three (N = 4,012)	2.29	[-3.22, 7.81]	3.62*	[2.17, 5.07]
Overall (N = 4,854)	0.20	[-4.21, 4.60]	-0.15	[-1.57, 1.27]
Overall Aggregate	8		-6	

(continued)

Table 7-22 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries attributed to practices in Network 2:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to a hospitalization				
Year One (N = 3,784)	19.99*	[11.65, 28.32]	12.20*	[6.33, 18.07]
Year Two (N = 4,097)	16.22*	[8.84, 23.61]	9.97*	[3.67, 16.27]
Year Three (N = 4,012)	16.56*	[7.62, 25.50]	15.55*	[7.02, 24.07]
Overall (N = 4,854)	16.66*	[9.13, 24.19]	12.15*	[5.85, 18.44]
Overall Aggregate	685*		500*	
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 433)	-27.33*	[-54.10, -0.57]	-28.36*	[-37.87, -18.86]
Year Two (N = 553)	-15.04	[-39.40, 9.33]	-18.10*	[-27.66, -8.55]
Year Three (N = 508)	-1.54	[-22.91, 19.83]	0.05	[-9.60, 9.71]
Overall (N = 1,222)	-13.73	[-35.32, 7.86]	-14.60*	[-19.92, -9.29]
Overall Aggregate	-565		-601*	

NOTES:

- Total Medicare expenditures, acute-care expenditures, ER expenditures, specialty physician expenditures, and primary care physician expenditures measures are PBPM expenditures.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments or utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries attributed to North Carolina MAPCP Demonstration practices in Network 2, **Table 7-22** shows the following:

- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, the growth in *overall aggregate* **acute-care expenditures** was \$3.85 million lower compared to beneficiaries assigned to PCMH practices and \$3.96 million lower compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, the growth in *overall aggregate* **expenditures for ER visits not leading to hospitalization** was approximately \$605,000 faster compared to beneficiaries assigned to PCMH practices and approximately \$632,000 faster compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, the growth in *overall aggregate* **specialty physician expenditures** was approximately \$861,000 lower compared to beneficiaries assigned to PCMH practices and \$1.72 million lower compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, the growth in *overall aggregate* **primary care physician expenditures** was \$1.51 million lower compared to beneficiaries assigned to PCMH practices and \$1.46 million lower compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, **ER visits not leading to a hospitalization** increased by 685 visits compared to beneficiaries assigned to PCMH practices and increased by 500 visits compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2, **30-day unplanned readmissions** decreased by 601 visits compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* results were observed among Medicare beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2 for the overall rates of all-cause inpatient admissions compared to beneficiaries assigned to either PCMH or non-PCMH practices. The reduced growth in total Medicare expenditures for beneficiaries assigned to North Carolina MAPCP Demonstration practices in Network 2 was driven by reduced growth in both acute-care expenditures and physician-care expenditures.

Table 7-23
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures
among special populations:
Six quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only										
Year One	N/A	N/A	N/A	N/A	N/A	3,301	-27.70	[-122.70, 67.31]	-5.10	[-45.53, 35.33]
Year Two	N/A	N/A	N/A	N/A	N/A	2,707	107.73*	[41.43, 174.03]	84.82*	[29.30, 140.35]
Overall Overall Aggregate	N/A	N/A	N/A	N/A	N/A	3,393	17.01 \$763,884	[-53.19, 87.21]	24.58 \$1,103,961	[-12.43, 61.59]
Behavioral health conditions only										
Year One	322	441.74	[-132.44, 1015.92]	206.48*	[36.42, 376.54]	473	-419.71*	[-653.52, -185.90]	-85.01	[-222.56, 52.55]
Year Two	260	444.37	[-170.49, 1059.23]	115.11	[-44.67, 274.90]	387	-18.89	[-366.19, 328.40]	94.44	[-63.19, 252.08]
Overall Overall Aggregate	329	442.59 \$1,950,953	[-135.70, 1020.89]	176.80* \$779,333*	[39.82, 313.78]	492	-282.73* -\$1,691,881*	[-418.21, -147.25]	-23.68 -\$141,699	[-141.39, 94.03]
Disabled beneficiaries only										
Year One	709	18.64	[-90.72, 128.00]	77.65	[-35.90, 191.20]	3,398	-37.20	[-118.73, 44.32]	-12.38	[-74.39, 49.63]
Year Two	610	111.56	[-50.54, 273.65]	171.21*	[35.67, 306.76]	2,929	61.68	[-20.68, 144.04]	68.83*	[16.42, 121.25]
Overall Overall Aggregate	760	50.54 \$502,732	[-51.58, 152.65]	109.77* \$1,091,975*	[3.22, 216.31]	3,701	-2.18 -\$96,864	[-59.12, 54.77]	16.39 \$729,615	[-30.22, 63.00]

(continued)

Table 7-23 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures
among special populations:
Six quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Asthma diagnosis only										
Year One	350	-6.33	[-125.90, 113.23]	7.42	[-88.19, 103.03]	406	-6.07	[-104.64, 92.50]	95.15	[-18.58, 208.87]
Year Two	295	73.94	[-7.81, 155.70]	57.73	[-7.78, 123.24]	347	-39.38	[-215.32, 136.56]	141.49*	[34.34, 248.63]
Overall		19.44		23.57			-16.94		110.27*	
Overall Aggregate	350	\$100,820	[-83.93, 122.81]	\$122,244	[-56.58, 103.72]	406	-\$100,428	[-118.63, 84.76]	\$653,883*	[8.66, 211.87]
Rural beneficiaries only										
Year One	6,033	39.95*	[20.11, 59.79]	34.93	[-1.31, 71.16]	3,978	-28.32	[-347.62, 290.97]	116.84	[-117.05, 350.74]
Year Two	4,981	60.41*	[33.03, 87.79]	65.52*	[9.85, 121.18]	2,958	219.73	[-452.77, 892.22]	268.39	[-249.79, 786.57]
Overall		46.68*		45.00*			53.45		166.80	
Overall Aggregate	6,231	\$3,946,656*	[29.40, 63.97]	\$3,804,152*	[4.63, 85.37]	4,230	\$2,496,287	[-344.73, 451.63]	\$7,790,804	[-108.91, 442.51]

(continued)

Table 7-23 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures
among special populations:
Six quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Non-White beneficiaries only										
Year One	5,634	19.91*	[0.91, 38.91]	17.34	[-7.31, 42.00]	3,067	-25.18	[-106.80, 56.45]	14.90	[-13.33, 43.14]
Year Two	4,818	27.76	[-0.80, 56.32]	35.39*	[16.82, 53.96]	2,483	49.84	[-42.11, 141.79]	43.51*	[8.16, 78.87]
Overall		22.57*		23.46*			0.78		24.80	
Overall Aggregate	5,880	\$1,760,765*	[3.62, 41.52]	\$1,830,058*	[2.91, 44.01]	3,305	\$28,788	[-60.90, 62.47]	\$912,140	[-3.42, 53.03]
Network 1 and all comparisons										
Year One	1,650	2.83	[-19.77, 25.43]	-3.05	[-24.37, 18.26]	1,415	69.18*	[10.72, 127.65]	87.72*	[52.20, 123.24]
Year Two	1,233	9.84	[-24.55, 44.24]	-1.31	[-23.64, 21.01]	1,064	-27.60	[-74.73, 19.53]	0.87	[-30.06, 31.80]
Overall		5.10		-2.49			36.45		58.34*	
Overall Aggregate	1,720	\$106,394	[-19.26, 29.46]	-\$51,918	[-21.40, 16.43]	1,521	\$587,395	[-2.14, 75.04]	\$940,284*	[31.16, 85.53]
Network 2 and all comparisons										
Year One	611	-22.68	[-51.32, 5.96]	-24.50*	[-48.23, -0.77]	635	-83.45*	[-155.84, -11.07]	-61.48*	[-100.16, -22.81]
Year Two	566	-1.55	[-37.55, 34.45]	-11.63	[-25.78, 2.52]	618	3.29	[-55.25, 61.83]	33.72	[-16.55, 84.00]
Overall		-14.29		-19.39*			-47.35*		-21.85	
Overall Aggregate	665	-\$109,608	[-44.34, 15.75]	-\$148,714*	[-36.63, -2.14]	736	-\$340,319*	[-92.46, -2.23]	-\$157,093	[-51.82, 8.11]
Network 3 and all comparisons										
Year One	7,515	20.78*	[3.23, 38.32]	16.81*	[1.19, 32.42]	4,657	-2.73	[-54.74, 49.28]	16.18	[-7.41, 39.76]
Year Two	6,405	30.18	[-2.52, 62.88]	24.28*	[5.26, 43.29]	3,541	45.99*	[0.10, 91.88]	72.49*	[42.05, 102.92]
Overall		23.91*		19.29*			13.37		34.79*	
Overall Aggregate	7,844	\$2,528,713*	[2.21, 45.60]	\$2,040,812*	[4.27, 34.32]	4,967	\$733,269	[-22.36, 49.11]	\$1,907,411*	[12.29, 57.29]

(continued)

Table 7-23 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for total PBPM Medicaid expenditures
among special populations:
Six quarters of the MAPCP Demonstration

Population	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Network 4 and all comparisons										
Year One	1,660	-6.25	[-36.63, 24.12]	-7.44	[-32.96, 18.08]	1,056	-73.16	[-148.96, 2.64]	-52.30*	[-101.36, -3.25]
Year Two	1,620	30.40	[-8.37, 69.17]	23.61*	[2.25, 44.96]	1,040	-22.06	[-87.67, 43.56]	6.95	[-51.69, 65.58]
Overall		8.70		5.23			-51.83		-27.57	
Overall Aggregate	1,768	\$185,023	[-21.97, 39.37]	\$111,160	[-14.21, 24.67]	1,190	-\$638,811	[-109.65, 6.00]	-\$339,782	[-76.24, 21.11]

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries belonging to these special populations, we find little evidence that the MAPCP Demonstration slowed the growth of Medicaid expenditures, with the exception of children and adult beneficiaries assigned to MAPCP Demonstration practices in Network 2 and adults with behavioral health conditions. However, these results were not consistent across CGs. Specifically, **Table 7-23** shows the following:

- Among **Medicaid children with behavioral health conditions**, the growth in *overall aggregate* total Medicaid expenditures was approximately \$779,000 greater for those assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.
- Among **Medicaid children with disabilities**, the growth in *overall aggregate* total Medicaid expenditures was \$1.09 million greater for those assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.
- Among **Medicaid children living in rural areas**, the growth in *overall aggregate* total Medicaid expenditures was \$3.95 million greater for those assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices and \$3.80 million faster compared to those in non-PCMH practices.
- Among **non-White Medicaid children**, the growth in *overall aggregate* total Medicaid expenditures was \$1.76 million greater for those assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices and \$1.83 million faster compared to those in non-PCMH practices.
- Among **Medicaid children assigned to MAPCP Demonstration practices in Network 2**, the growth in *overall aggregate* total Medicaid expenditures was approximately \$148,000 lower compared to those non-PCMH practices.
- Among **children assigned to MAPCP Demonstration practices in Network 3**, the growth in *overall aggregate* total Medicaid expenditures was \$2.53 million faster compared to those in PCMH practices and \$2.04 million faster compared to those in non-PCMH practices.
- Among **Medicaid adults with behavioral health conditions**, the growth in *overall aggregate* total Medicaid expenditures was \$1.69 million lower for those assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices.
- Among **Medicaid adults with an asthma diagnosis**, the growth in *overall aggregate* total Medicaid expenditures was approximately \$653,000 greater for those assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.

- Among **Medicaid adults assigned to MAPCP Demonstration practices in Network 1**, the growth in *overall aggregate* total Medicaid expenditures was approximately \$940,000 faster compared to those in non-PCMH practices.
- Among **Medicaid adults assigned to MAPCP Demonstration practices in Network 2**, the growth in *overall aggregate* total Medicaid expenditures was approximately \$340,000 lower compared to those in PCMH practices.
- Among **Medicaid adults assigned to MAPCP Demonstration practices in Network 3**, the growth in *overall aggregate* total Medicaid expenditures was \$1.91 million faster compared to those non-PCMH practices.

No statistically significant *overall* impacts of the North Carolina MAPCP Demonstration on total Medicaid expenditures were observed among children with asthma diagnoses or among those assigned to practices in Network 1 or Network 4. In addition, no statistically significant *overall* impacts of the North Carolina MAPCP Demonstration on total Medicaid expenditures were observed among adults with multiple chronic conditions, with disabilities, living in rural areas, who were non-White, and those assigned to practices in Network 4. There was no evidence that the North Carolina MAPCP Demonstration slowed the growth of Medicaid expenditures among the examined special populations, with the exception of children and adults attributed to MAPCP Demonstration practices in Network 2.

Because Medicaid children attributed to MAPCP Demonstration practices in Network 2 showed significantly lower rates of total Medicaid expenditure growth, we examined additional expenditure and utilization outcomes to gain a better understanding of the lower expenditure growth. **Table 7-24** shows that the lower growth in total Medicaid expenditures among Medicaid children assigned to MAPCP Demonstration practices in Network 2 was partially because of lower growth in specialty physician expenditures, but the expenditure and utilization measures examined for Medicaid adults did not explain the lower growth of total Medicaid expenditures.

Table 7-24
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
selected expenditure and utilization measures among Medicaid beneficiaries attributed to
practices in Network 2:
Six quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	North Carolina MAPCP Demonstration vs. CG non- PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Total Medicaid expenditures						
Year One	611	-24.50*	[-48.23, -0.77]	635	-83.45*	[-155.84, -11.07]
Year Two	566	-11.63	[-25.78, 2.52]	618	3.29	[-55.25, 61.83]
Overall		-19.39*			-47.35*	
Overall Aggregate	665	-\$148,714*	[-36.63, -2.14]	736	-\$340,319*	[-92.46, -2.23]
Acute-care expenditures						
Year One	611	4.34*	[0.36, 8.31]	635	3.68	[-11.24, 18.59]
Year Two	566	1.28	[-1.98, 4.54]	618	9.75*	[1.03, 18.47]
Overall		3.12			6.20	
Overall Aggregate	665	\$23,950	[-0.52, 6.77]	736	\$44,594	[-5.74, 18.15]
ER visits not leading to hospitalization (expenditures)						
Year One	611	0.51	[-2.02, 3.03]	635	-0.94	[-10.85, 8.96]
Year Two	566	-0.09	[-1.45, 1.28]	618	3.24	[-2.07, 8.55]
Overall		0.27			0.80	
Overall Aggregate	665	\$2,084	[-1.77, 2.31]	736	\$5,751	[-6.27, 7.87]
Specialty physician expenditures						
Year One	611	-4.22*	[-7.06, -1.38]	635	-0.62	[-5.75, 4.51]
Year Two	566	-3.51*	[-5.53, -1.48]	618	5.79*	[2.46, 9.11]
Overall		-3.94*			2.05	
Overall Aggregate	665	-\$30,202*	[-5.26, -2.61]	736	\$14,701	[-1.08, 5.17]
Primary care physician expenditures						
Year One	611	1.19	[-1.68, 4.07]	635	-8.50*	[-15.71, -1.29]
Year Two	566	1.35	[-1.75, 4.45]	618	2.68	[-3.17, 8.53]
Overall		1.26			-3.85	
Overall Aggregate	665	\$9,643	[-1.39, 3.91]	736	-\$27,660	[-10.05, 2.35]
All-cause admissions						
Year One	611	0.11	[-0.04, 0.26]	635	0.27	[-1.13, 1.66]
Year Two	566	-0.09	[-0.26, 0.08]	618	0.97*	[0.14, 1.81]
Overall		0.03			0.56	
Overall Aggregate	665	1	[-0.03, 0.09]	736	13	[-0.47, 1.59]

(continued)

Table 7-24 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicaid beneficiaries attributed to practices in Network 2:
Six quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
ER visits not leading to a hospitalization						
Year One	611	-1.64*	[-2.77, -0.52]	635	-3.01*	[-5.95, -0.08]
Year Two	566	-2.24*	[-3.78, -0.69]	618	0.47	[-1.64, 2.58]
Overall		-1.88*			-1.56	
Overall Aggregate	665	-48*	[-3.10, -0.66]	736	-37	[-3.74, 0.62]
30-day unplanned readmissions						
Year One	N/A	N/A	N/A	59	0.41	[-2.86, 3.68]
Year Two	N/A	N/A	N/A	28	-12.18	[-49.37, 25.00]
Overall	N/A	N/A	N/A	85	-3.34	[-14.43, 7.75]

NOTES:

- Total Medicare, acute-care, ER, specialty physician, and primary care physician expenditures measures are PBPM.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants attributed to practices in Network 2 who were eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries attributed to Network 2 practices in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children attributed to North Carolina MAPCP Demonstration practices in Network 2, **Table 7-24** shows the following:

- Among Medicaid children attributed to North Carolina MAPCP Demonstration practices in Network 2, the growth in *overall aggregate* **specialty physician** expenditures was approximately \$30,000 lower compared to children in non-PCMH practices.
- Among Medicaid children attributed to North Carolina MAPCP Demonstration practices in Network 2, the *overall aggregate* number of beneficiaries with an **ER visit not leading to hospitalization** decreased by 48 compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* results were observed among Medicaid children assigned to North Carolina MAPCP Demonstration practices in Network 2 for the measures of acute-care expenditures, expenditures for ER visits not leading to hospitalization, primary care physician expenditures, or all-cause inpatient admissions. No statistically significant overall results were observed among Medicaid adults assigned to North Carolina MAPCP Demonstration practices in Network 2 for the measures of acute-care expenditures, expenditures for ER visits not leading to hospitalization, specialty care expenditures, primary care physician expenditures, all-cause inpatient admissions, ER visits not leading to hospitalization, or 30-day unplanned readmissions. While the lower growth in Medicaid expenditures for children are partially driven by lower growth in specialty physician expenditures, none of the measures we examined were able to explain the lower growth in Medicaid expenditures for adults assigned to North Carolina MAPCP Demonstration practices in Network 2.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group was defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the chronic conditions and the CMS-HCC risk category can be found in **Appendix D**. Over the 13 quarters of the demonstration, 22 percent of MAPCP Demonstration Medicare beneficiaries (demonstration and CG) fit this profile in North Carolina. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into the MAPCP Demonstration (or CG). Over the course of the demonstration, 39 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile. Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

The North Carolina MAPCP Demonstration was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the North Carolina MAPCP Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 7-25** reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 7-26** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.

See **Section 7.3.2** for further discussion of the interpretation of these measures. Because we received Medicaid data only for the first 6 quarters of the MAPCP Demonstration period, and because the process of care indicators are measured at the annual level, only the first 4 quarters of data for an individual are used in **Table 7-26**.

- **Table 7-27** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See **Section 7.3.2** for further discussion of the interpretation of these measures. Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data.

Table 7-25
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic
conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 2,061)	1.70	[-0.69, 4.09]	1.93*	[0.22, 3.65]
Year Two (N = 1,470)	-1.48	[-5.33, 2.38]	0.17	[-1.85, 2.20]
Year Three (N = 941)	-0.65	[-4.28, 2.97]	1.25	[-1.81, 4.31]
Overall (N = 2,199)	0.16	[-1.85, 2.17]	1.21	[-0.50, 2.92]
Retinal eye examination				
Year One (N = 2,061)	-2.05	[-5.45, 1.34]	-1.51	[-3.89, 0.87]
Year Two (N = 1,470)	3.34	[-1.42, 8.09]	1.68	[-1.26, 4.62]
Year Three (N = 941)	1.99	[-4.48, 8.46]	4.16*	[0.05, 8.27]
Overall (N = 2,199)	0.57	[-2.53, 3.67]	0.73	[-1.46, 2.92]
LDL-C screening				
Year One (N = 2,061)	-0.77	[-4.53, 2.98]	0.85	[-1.37, 3.08]
Year Two (N = 1,470)	-1.63	[-5.85, 2.59]	-0.44	[-2.81, 1.93]
Year Three (N = 941)	-1.93	[-6.43, 2.57]	0.20	[-4.01, 4.42]
Overall (N = 2,199)	-1.30	[-4.85, 2.25]	0.29	[-1.98, 2.57]

(continued)

Table 7-25 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical attention for nephropathy				
Year One (N = 2,061)	2.84	[-2.49, 8.18]	1.84	[-2.79, 6.47]
Year Two (N = 1,470)	4.09	[-0.96, 9.14]	2.09	[-2.33, 6.52]
Year Three (N = 941)	2.75	[-4.39, 9.88]	7.72*	[2.31, 13.13]
Overall (N = 2,199)	3.23	[-1.01, 7.48]	3.16	[-1.11, 7.43]
Received all 4 diabetes tests				
Year One (N = 2,061)	1.52	[-1.75, 4.79]	-0.57	[-4.41, 3.28]
Year Two (N = 1,470)	5.77*	[1.86, 9.67]	2.78	[-0.52, 6.09]
Year Three (N = 941)	3.65	[-1.78, 9.07]	3.45	[-1.79, 8.69]
Overall (N = 2,199)	3.36*	[0.60, 6.13]	1.38	[-1.97, 4.73]
Received none of the 4 diabetes tests				
Year One (N = 2,061)	-0.14	[-0.72, 0.45]	-0.77	[-1.54, 0.01]
Year Two (N = 1,470)	-0.27	[-1.35, 0.82]	-0.32	[-1.00, 0.37]
Year Three (N = 941)	0.17	[-0.79, 1.14]	-1.43*	[-2.57, -0.29]
Overall (N = 2,199)	-0.11	[-0.67, 0.44]	-0.76*	[-1.37, -0.15]
Total lipid panel				
Year One (N = 3,711)	0.69	[-4.56, 5.93]	1.72	[-0.65, 4.08]
Year Two (N = 2,669)	-1.58	[-6.35, 3.20]	-0.22	[-2.86, 2.42]
Year Three (N = 1,740)	0.33	[-6.99, 7.64]	-1.99	[-6.78, 2.80]
Overall (N = 4,237)	-0.14	[-5.30, 5.03]	0.29	[-2.20, 2.78]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries who have diabetes and multiple chronic conditions, we found some evidence that the North Carolina MAPCP Demonstration affected some process of care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 7-25** shows the following:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **all four diabetes tests** increased among North Carolina MAPCP Demonstration beneficiaries compared to Medicare beneficiaries assigned to PCMH comparison practices only.

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **none of the four diabetes tests** decreased among North Carolina MAPCP Demonstration beneficiaries compared to Medicare beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examinations, LDL-C screening, medical attention for nephropathy, and total lipid panels.

Table 7-26
North Carolina: Comparison of average MAPCP Demonstration effect estimates for process of care indicators among Medicaid beneficiaries with multiple chronic conditions: Four quarters of the MAPCP Demonstration

Outcome	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing Year One	519	1.54	[-2.04, 5.11]	-1.54	[-3.60, 0.51]
Retinal eye examination Year One	519	-3.73	[-17.73, 10.28]	9.63*	[2.99, 16.27]
LDL-C screening Overall	519	-0.11	[-3.58, 3.35]	-2.74	[-6.71, 1.23]
Medical attention for nephropathy Year One	519	<0.00	[0.00, 0.00]	-0.24	[-0.77, 0.30]
Received all 4 diabetes tests Year One	519	-0.94	[-12.93, 11.06]	5.73	[-0.28, 11.74]
Received none of the 4 diabetes tests Year One	519	<0.00	[0.00, 0.00]	0.09	[-0.21, 0.39]
Breast cancer screening Year One	855	-5.10*	[-9.86, -0.34]	-8.30*	[-14.75, -1.85]
Cervical cancer screening Year One	1,359	-2.55	[-6.45, 1.35]	-2.47	[-5.55, 0.61]
Appropriate use of antidepressant medication management: 12 weeks Year One	161	-3.33	[-23.10, 16.43]	0.82	[-7.97, 9.61]
Appropriate use of antidepressant medication management: 6 months Year One	161	2.64	[-2.47, 7.75]	2.09	[-8.01, 12.18]

(continued)

Table 7-26 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for process of care indicators among Medicaid beneficiaries with multiple chronic conditions: Four quarters of the MAPCP Demonstration

Outcome	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Appropriate use of asthma medications Year One	227	-1.84	[-9.23, 5.56]	-4.53	[-11.10, 2.03]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, so no individual could have more than 1 year of observation. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared to the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries with multiple chronic conditions, we found some evidence that the North Carolina MAPCP Demonstration affected process of care measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 7-26** shows the following:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **retinal eye examinations** increased among North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.
- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **breast cancer screening** decreased among North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH comparison practices.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, medical attention for nephropathy, receipt of all four diabetes tests, receipt of none of the diabetes tests, cervical cancer screening, and appropriate use of antidepressant or asthma medications.

Table 7-27
North Carolina: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 6,810)	-1.23	[-4.95, 2.50]	-0.26	[-2.59, 2.07]
Year Two (N = 6,436)	-4.15*	[-7.89, -0.41]	-4.95*	[-8.08, -1.83]
Year Three (N = 5,562)	-3.46	[-8.71, 1.79]	-1.05	[-4.20, 2.10]
Overall (N = 7,730)	-2.36	[-5.54, 0.83]	-2.05	[-4.37, 0.27]
PQI admissions—overall ²				
Year One (N = 6,810)	2.38	[-5.35, 10.11]	1.80	[-2.57, 6.16]
Year Two (N = 6,436)	3.12	[-5.84, 12.07]	7.01*	[1.50, 12.53]
Year Three (N = 5,562)	4.09	[-2.74, 10.92]	4.43	[-1.07, 9.92]
Overall (N = 7,730)	2.31	[-4.99, 9.61]	5.00*	[0.70, 9.30]
PQI admissions—acute ³				
Year One (N = 6,810)	1.29	[-3.07, 5.65]	1.26	[-1.51, 4.02]
Year Two (N = 6,436)	4.02*	[0.11, 7.93]	4.76*	[1.51, 8.01]
Year Three (N = 5,562)	2.94	[-1.29, 7.17]	2.48	[-0.92, 5.87]
Overall (N = 7,730)	2.74	[-0.79, 6.27]	2.90*	[0.29, 5.50]
PQI admissions—chronic ⁴				
Year One (N = 6,810)	0.87	[-3.89, 5.63]	0.62	[-1.67, 2.91]
Year Two (N = 6,436)	-0.85	[-6.39, 4.69]	2.18	[-0.77, 5.13]
Year Three (N = 5,562)	1.30	[-3.02, 5.61]	2.07	[-1.04, 5.18]
Overall (N = 7,730)	-0.32	[-4.88, 4.24]	2.13	[-0.02, 4.28]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with multiple chronic conditions, we found some evidence that the North Carolina MAPCP Demonstration increased the rate of PQI admissions, though statistical significance was not seen across both CGs. Specifically, **Table 7-27** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **overall** and **acute PQI admissions** increased among North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events.

The North Carolina MAPCP Demonstration was expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the North Carolina MAPCP Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 7-28** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the continuity of care index.
- **Table 7-29** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 7.4.2** for further discussion of the interpretation of these measures. Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data. For the Medicaid analysis, data was only available for the first 6 quarters of the MAPCP Demonstration period.

Table 7-28
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
access to care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 6,810)	5.24	[-173.25, 183.73]	75.79	[-82.79, 234.37]
Year Two (N = 6,436)	-16.75	[-162.67, 129.17]	49.87	[-112.78, 212.52]
Year Three (N = 5,562)	-53.20	[-198.32, 91.92]	5.69	[-149.35, 160.72]
Overall (N = 7,730)	-14.40	[-162.98, 134.18]	48.32	[-108.00, 204.64]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 6,810)	-30.21	[-138.21, 77.79]	-30.53	[-76.90, 15.84]
Year Two (N = 6,436)	4.99	[-76.32, 86.31]	-51.14	[-102.55, 0.28]
Year Three (N = 5,562)	5.59	[-83.10, 94.27]	-86.47*	[-139.87, -33.07]
Overall (N = 7,730)	-6.26	[-93.04, 80.52]	-56.64*	[-99.64, -13.64]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 6,810)	59.31*	[22.62, 96.00]	48.83*	[22.00, 75.67]
Year Two (N = 6,436)	43.97*	[8.14, 79.80]	39.02*	[15.36, 62.67]
Year Three (N = 5,562)	70.78*	[22.50, 119.05]	63.31*	[35.33, 91.28]
Overall (N = 7,730)	55.04*	[20.30, 89.77]	48.11*	[24.67, 71.56]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 6,462)				
1st quintile	0.14	[-2.99, 3.27]	-1.24	[-3.87, 1.38]
5th quintile	-0.13	[-3.10, 2.84]	1.31	[-1.47, 4.09]
Year Two (N = 4,799)				
1st quintile	-0.03	[-2.76, 2.70]	-1.35	[-3.60, 0.90]
5th quintile	0.03	[-2.65, 2.71]	1.48	[-0.98, 3.95]
Year Three (N = 3,330)				
1st quintile	-0.93	[-4.40, 2.55]	-2.79*	[-5.43, -0.14]
5th quintile	0.90	[-2.38, 4.18]	2.95*	[0.23, 5.66]
Overall (N = 6,778)				
1st quintile	-0.16	[-3.08, 2.76]	-1.63	[-4.01, 0.75]
5th quintile	0.16	[-2.64, 2.95]	1.74	[-0.80, 4.28]

(continued)

Table 7-28 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
access to care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,770)	3.76	[-77.13, 84.66]	0.13	[-41.25, 41.50]
Year Two (N = 1,635)	35.04	[-31.74, 101.83]	23.09	[-19.44, 65.61]
Year Three (N = 1,247)	-60.06	[-142.62, 22.49]	-41.00	[-96.43, 14.44]
Overall (N = 3,402)	-2.51	[-59.44, 54.41]	-2.93	[-39.79, 33.93]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 2,197)	17.74	[-20.97, 56.45]	8.64	[-14.56, 31.85]
Year Two (N = 2,030)	12.68	[-41.19, 66.55]	8.18	[-18.27, 34.64]
Year Three (N = 1,584)	-23.09	[-77.50, 31.31]	8.66	[-18.43, 35.75]
Overall (N = 4,083)	4.80	[-35.05, 44.66]	8.49	[-7.94, 24.91]

(continued)

Table 7-28 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
access to care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better COC)				
Year One (N = 7,379)				
1st quintile	0.43	[-1.36, 2.22]	-0.28	[-1.40, 0.84]
5th quintile	-0.61	[-3.17, 1.96]	0.39	[-1.16, 1.93]
Year Two (N = 5,608)				
1st quintile	2.18*	[0.65, 3.70]	1.03	[-0.59, 2.64]
5th quintile	-2.89*	[-4.90, -0.88]	-1.30	[-3.35, 0.75]
Year Three (N = 3,964)				
1st quintile	1.19	[-0.80, 3.18]	-1.18	[-3.14, 0.77]
5th quintile	-1.55	[-4.17, 1.07]	1.39	[-0.88, 3.65]
Overall (N = 7,498)				
1st quintile	1.19	[-0.20, 2.57]	-0.06	[-1.25, 1.13]
5th quintile	-1.58	[-3.50, 0.33]	0.06	[-1.45, 1.58]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Estimates for primary care visits as a percentage of total visits and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, but because these two outcomes are annual measures, only the first 12 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared to the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that the North Carolina MAPCP Demonstration affected the access to care and care coordination measures, with the exception of rates of medical specialist and surgical specialist visits. Specifically, **Table 7-28** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **medical specialist visits** decreased among North Carolina MAPCP Demonstration Medicare beneficiaries compared to beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **surgical specialist visits** increased among North Carolina MAPCP Demonstration Medicare beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices.

No statistically significant *overall* impacts were observed for the measures of primary care visits, primary care visits as a percentage of total visits, follow-up visits within 14 days after discharge, 30-day unplanned readmissions, and continuity of care.

Table 7-29
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
access to care and coordination of care among Medicaid beneficiaries with
multiple chronic conditions:
Six quarters of the MAPCP Demonstration

Outcome	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	3,301	0.90	[-3.84, 5.64]	1.65	[-1.40, 4.69]
Year Two	2,707	-4.31	[-9.15, 0.54]	-0.69	[-5.16, 3.78]
Overall	3,393	-0.82	[-4.50, 2.86]	0.88	[-2.36, 4.11]
Medical specialist visits					
Year One	3,301	2.23	[-1.26, 5.72]	-0.11	[-1.64, 1.41]
Year Two	2,707	2.64	[-1.62, 6.90]	-1.05	[-2.71, 0.62]
Overall	3,393	2.37	[-1.21, 5.94]	-0.42	[-1.80, 0.95]
Surgical specialist visits					
Year One	3,301	-0.12	[-1.58, 1.34]	1.00	[-0.75, 2.74]
Year Two	2,707	6.05*	[0.06, 12.04]	4.17*	[0.54, 7.79]
Overall	3,393	1.92	[-0.31, 4.14]	2.04	[-0.16, 4.25]

(continued)

Table 7-29 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
access to care and coordination of care among Medicaid beneficiaries with
multiple chronic conditions:
Six quarters of the MAPCP Demonstration

Outcome	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits as percentage of total visits (% PC)					
Overall					
% PC < 70%	1,719	0.27	[-5.95, 6.49]	-1.10	[-4.79, 2.60]
70% ≤ % PC < 100%		-0.12	[-2.84, 2.60]	-0.03	[-0.30, 0.23]
% PC = 100%		-0.15	[-3.65, 3.35]	1.13	[-2.74, 5.00]
30-day unplanned readmissions					
Year One	579	2.44	[-0.19, 5.06]	-1.40	[-4.50, 1.70]
Year Two	191	0.52	[-9.09, 10.14]	4.26	[-2.62, 11.13]
Overall	690	2.05	[-0.33, 4.44]	-0.27	[-3.59, 3.05]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Estimates for primary care visits as a percentage of total visits are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. The demonstration period for this report includes 6 quarters, but because this outcome is an annual measure, only the first 4 quarters are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared to the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, no statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical visits, primary care visits as a percentage of total visits, and 30-day unplanned readmissions, as shown in **Table 7-29**.

The North Carolina MAPCP Demonstration was expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the North Carolina MAPCP Demonstration and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 7-30** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 7-31** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 7-32** reports on changes in *all-cause admissions and all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 7-33** reports on changes in *all-cause admissions and all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 7.6.2** for further discussion of the interpretation of these measures. Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data. For the Medicaid analysis, data was only available for the first 6 quarters of the MAPCP Demonstration period.

Table 7-30
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 6,810)	18.77	[-98.73, 136.26]	10.33	[-122.00, 142.67]
Year Two (N = 6,436)	-41.23	[-183.30, 100.83]	2.37	[-72.84, 77.58]
Year Three (N = 5,562)	-57.12	[-208.83, 94.58]	97.17*	[27.53, 166.81]
Overall (N = 7,730)	-13.79	[-125.97, 98.39]	37.98	[-38.58, 114.54]
Overall Aggregate	-\$2,715,480		\$7,476,936	
Acute-care				
Year One (N = 6,810)	11.91	[-51.16, 74.99]	-28.26	[-131.78, 75.25]
Year Two (N = 6,436)	-46.86	[-128.20, 34.47]	-15.11	[-62.40, 32.18]
Year Three (N = 5,562)	-40.12	[-113.02, 32.79]	35.34	[-0.41, 71.08]
Overall (N = 7,730)	-17.20	[-76.04, 41.64]	0.35	[-50.99, 51.69]
Overall Aggregate	-\$3,387,135		\$69,242	
Post-acute-care				
Year One (N = 6,810)	3.37	[-30.19, 36.94]	11.24	[-12.23, 34.71]
Year Two (N = 6,436)	8.84	[-29.04, 46.72]	15.09	[-3.61, 33.78]
Year Three (N = 5,562)	-14.42	[-56.05, 27.22]	25.45*	[5.85, 45.05]
Overall (N = 7,730)	2.06	[-25.65, 29.77]	15.08*	[2.30, 27.85]
Overall Aggregate	\$405,648		\$2,968,329*	
ER visits not leading to hospitalization				
Year One (N = 6,810)	0.72	[-9.37, 10.81]	2.08	[-4.27, 8.44]
Year Two (N = 6,436)	-0.97	[-9.43, 7.50]	2.93	[-2.32, 8.18]
Year Three (N = 5,562)	-0.32	[-9.61, 8.96]	0.42	[-7.00, 7.84]
Overall (N = 7,730)	0.15	[-8.12, 8.42]	1.95	[-2.87, 6.76]
Overall Aggregate	\$29,828		\$383,324	
Outpatient				
Year One (N = 6,810)	-19.75	[-44.23, 4.72]	8.09	[-5.75, 21.93]
Year Two (N = 6,436)	-6.57	[-30.89, 17.75]	6.31	[-11.57, 24.19]
Year Three (N = 5,562)	-21.48	[-44.07, 1.11]	7.50	[-9.17, 24.16]
Overall (N = 7,730)	-14.19	[-33.19, 4.82]	7.38	[-4.50, 19.26]
Overall Aggregate	-\$2,793,023		\$1,452,984	
Specialty physician				
Year One (N = 6,810)	2.76	[-13.23, 18.74]	-7.61	[-21.66, 6.44]
Year Two (N = 6,436)	6.98	[-6.34, 20.31]	-11.47	[-30.43, 7.50]
Year Three (N = 5,562)	4.07	[-8.85, 17.00]	-5.56	[-22.02, 10.89]
Overall (N = 7,730)	4.73	[-6.98, 16.44]	-7.89	[-23.36, 7.59]
Overall Aggregate	\$931,649		-\$1,552,526	

(continued)

Table 7-30 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care physician				
Year One (N = 6,810)	0.60	[-5.42, 6.61]	1.27	[-3.73, 6.27]
Year Two (N = 6,436)	1.39	[-5.01, 7.78]	-1.06	[-6.55, 4.43]
Year Three (N = 5,562)	1.77	[-6.93, 10.47]	2.82	[-2.44, 8.09]
Overall (N = 7,730)	1.46	[-5.06, 7.98]	1.25	[-3.76, 6.26]
Overall Aggregate	\$286,898		\$245,719	
Home health				
Year One (N = 6,810)	8.38	[-0.58, 17.34]	12.82*	[5.19, 20.44]
Year Two (N = 6,436)	-5.06	[-13.35, 3.23]	1.88	[-5.66, 9.43]
Year Three (N = 5,562)	-2.17	[-13.68, 9.34]	10.73*	[1.91, 19.56]
Overall (N = 7,730)	0.69	[-6.55, 7.94]	9.36*	[2.60, 16.11]
Overall Aggregate	\$136,643		\$1,841,849*	
Other non-facility				
Year One (N = 6,810)	10.21*	[5.33, 15.09]	1.09	[-5.55, 7.72]
Year Two (N = 6,436)	0.78	[-5.70, 7.26]	3.57	[-1.86, 9.00]
Year Three (N = 5,562)	0.39	[-8.00, 8.79]	4.83	[-2.28, 11.94]
Overall (N = 7,730)	4.19	[-1.15, 9.53]	3.06	[-2.03, 8.16]
Overall Aggregate	\$824,104		\$603,085	
Laboratory				
Year One (N = 6,810)	-4.96	[-10.96, 1.03]	-4.53	[-9.21, 0.15]
Year Two (N = 6,436)	-2.07	[-7.06, 2.93]	-3.85	[-8.18, 0.47]
Year Three (N = 5,562)	-3.69	[-10.73, 3.34]	-3.39	[-9.11, 2.33]
Overall (N = 7,730)	-3.51	[-8.61, 1.59]	-3.88	[-8.52, 0.76]
Overall Aggregate	-\$691,148		-\$763,726	
Imaging				
Year One (N = 6,810)	-1.47	[-4.65, 1.72]	-0.95	[-3.32, 1.41]
Year Two (N = 6,436)	-1.64	[-5.27, 1.98]	-1.70	[-4.35, 0.95]
Year Three (N = 5,562)	-0.85	[-3.41, 1.71]	-1.13	[-3.59, 1.34]
Overall (N = 7,730)	-1.11	[-4.08, 1.86]	-1.24	[-3.63, 1.15]
Overall Aggregate	-\$218,443		-\$244,322	

(continued)

Table 7-30 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other facility				
Year One (N = 6,810)	0.13	[-0.05, 0.31]	-0.05	[-0.26, 0.17]
Year Two (N = 6,436)	0.11	[-0.06, 0.29]	0.04	[-0.04, 0.12]
Year Three (N = 5,562)	0.12	[-0.07, 0.30]	0.05	[-0.02, 0.13]
Overall (N = 7,730)	0.12	[-0.06, 0.30]	0.02	[-0.09, 0.13]
Overall Aggregate	\$23,497		\$3,384	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found faster growth in several expenditure categories for North Carolina MAPCP Demonstration beneficiaries, particularly when compared to beneficiaries in the non-PCMH practices. Specifically, **Table 7-30** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, there was no statistically significant difference in the *overall aggregate* growth of **total Medicare expenditures** among North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to either PCMH or non-PCMH practices
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **post-acute-care expenditures** was \$3 million greater for North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to non-PCMH practices.

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate home health expenditures* was \$1.8 million greater for North Carolina MAPCP Demonstration beneficiaries compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for total, acute-care, ER visits not leading to hospitalization, outpatient, specialty physician, primary care physician, other non-facility, laboratory, imaging, and other facility expenditures.

Table 7-31
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Six quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid					
Year One	3,301	-27.70	[-122.70, 67.31]	-5.10	[-45.53, 35.33]
Year Two	2,707	107.73*	[41.43, 174.03]	84.82*	[29.30, 140.35]
Overall		17.01		24.58	
Overall Aggregate	3,393	\$763,884	[-53.19, 87.21]	\$1,103,961	[-12.43, 61.59]
Acute-care					
Year One	3,301	-9.90	[-37.14, 17.35]	2.13	[-10.81, 15.07]
Year Two	2,707	23.05*	[2.08, 44.01]	19.32*	[0.65, 37.99]
Overall		0.98		7.80	
Overall Aggregate	3,393	\$43,968	[-22.35, 24.31]	\$350,440	[-5.43, 21.04]
ER visits not leading to hospitalization					
Year One	3,301	-2.13	[-13.88, 9.62]	-2.40	[-8.61, 3.80]
Year Two	2,707	19.10*	[9.13, 29.07]	19.96*	[14.22, 25.70]
Overall		4.88		4.98	
Overall Aggregate	3,393	\$219,095	[-5.81, 15.57]	\$223,575	[-0.15, 10.11]
Specialty physician					
Year One	3,301	-1.23	[-7.30, 4.85]	3.40	[-1.94, 8.74]
Year Two	2,707	8.72*	[1.58, 15.87]	7.63*	[1.49, 13.77]
Overall		2.06		4.80	
Overall Aggregate	3,393	\$92,441	[-3.19, 7.31]	\$215,430	[-0.16, 9.75]
Primary care physician					
Year One	3,301	4.64	[-4.89, 14.16]	-3.01	[-7.45, 1.44]
Year Two	2,707	10.04	[-1.60, 21.68]	2.67	[-4.37, 9.70]
Overall		6.42		-1.13	
Overall Aggregate	3,393	\$288,307	[-3.21, 16.06]	-\$50,914	[-5.93, 3.66]
Prescription drugs					
Year One	3,301	-13.74	[-35.91, 8.44]	-18.02*	[-31.20, -4.85]
Year Two	2,707	-2.55	[-45.69, 40.59]	7.55	[-10.61, 25.71]
Overall		-10.04		-9.58	
Overall Aggregate	3,393	-\$451,010	[-28.95, 8.87]	-\$430,245	[-20.73, 1.56]

(continued)

Table 7-31 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Six quarters of the MAPCP Demonstration

Type of expenditure	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Long-term care					
Year One	3,301	-2.43	[-20.56, 15.71]	5.21	[-7.96, 18.37]
Year Two	2,707	11.26	[-22.25, 44.78]	5.58	[-13.84, 25.00]
Overall		2.09		5.33	
Overall Aggregate	3,393	\$93,997	[-19.83, 24.02]	\$239,319	[-8.42, 19.08]

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, no statistically significant *overall* impacts were observed for total, acute-care, ER visits not leading to hospitalization, primary care physician, specialty care physician, prescription drug, and long-term care expenditures, as shown in **Table 7-31**.

Table 7-32
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries with multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 6,810)	8.26	[-12.14, 28.65]	0.77	[-10.57, 12.11]
Year Two (N = 6,436)	-1.39	[-25.19, 22.40]	7.89	[-0.74, 16.52]
Year Three (N = 5,562)	1.46	[-22.23, 25.14]	19.76*	[10.22, 29.30]
Overall (N = 7,730)	3.71	[-16.66, 24.08]	10.07*	[3.00, 17.14]
Overall Aggregate	243		661*	
ER visits not leading to hospitalization				
Year One (N = 6,810)	14.67	[-11.31, 40.65]	6.20	[-13.37, 25.76]
Year Two (N = 6,436)	15.13	[-9.90, 40.16]	7.21	[-13.23, 27.64]
Year Three (N = 5,562)	16.11	[-11.54, 43.76]	-2.63	[-24.22, 18.95]
Overall (N = 7,730)	16.49	[-6.04, 39.02]	4.27	[-12.88, 21.41]
Overall Aggregate	1,082		280	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that the North Carolina MAPCP Demonstration changed the utilization, with the exception of all-cause admissions. Specifically, **Table 7-32** shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 661 among Medicare beneficiaries assigned to the North Carolina MAPCP Demonstration compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for ER visits not leading to hospitalization.

Table 7-33
North Carolina: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries with multiple chronic conditions: Six quarters of the MAPCP Demonstration

Outcome	Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	3,301	-0.04	[-1.20, 1.13]	0.29	[-0.44, 1.02]
Year Two	2,707	1.85*	[0.80, 2.90]	0.99	[-0.13, 2.12]
Overall		0.59		0.52	
Overall Aggregate	3,393	88	[-0.30, 1.48]	78	[-0.25, 1.29]
ER visits not leading to hospitalization					
Year One	3,301	0.36	[-1.92, 2.63]	0.35	[-0.66, 1.35]
Year Two	2,707	3.03*	[0.53, 5.54]	2.39*	[0.80, 3.98]
Overall		1.24		1.02*	
Overall Aggregate	3,393	186	[-0.69, 3.17]	153*	[0.08, 1.97]

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found little evidence that the ADK Demonstration changed the utilization, with the exception of ER visits leading to hospitalization. Specifically, **Table 7-33** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 153 among Medicaid adult beneficiaries assigned to the North Carolina MAPCP Demonstration compared to beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for all-cause admissions.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Within the PCMH, significant care management and coordination resources may be required to meet the needs of these patients. There were no targeted interventions implemented in the demonstration to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse conditions. These individuals, however, are expected to benefit from initiatives to improve access to, coordination of, and continuity of care with primary care and behavioral health providers. Network care management and clinical pharmacy services are expected to increase care coordination between PCPs and behavioral health care providers for beneficiaries with mental illnesses and substance use disorders. Improved access and care coordination could increase use of outpatient behavioral health care services and primary care visits, and, in turn, more appropriate use of outpatient care could lead to decreased rates of hospitalization and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the demonstration. Using this criterion, 10 percent of the Medicare study sample (demonstration and CG beneficiaries), 5.5 percent of the adult Medicaid study sample, and 2 percent of the pediatric Medicaid study sample were identified as having a behavioral health condition.

- **Table 7-34** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.

- **Table 7-35** reports on changes in total Medicaid expenditures, expenditures for acute hospitalizations, expenditures for ER visits, and total Medicaid expenditures for which the primary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 7-36** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 7-37** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 7.6.2** for further discussion of the interpretation of these measures. Because 13 quarters of Medicare data were available for the MAPCP Demonstration period in North Carolina, the overall estimate for these measures includes all 13 quarters of data. Only 6 quarters of Medicaid data were available for the MAPCP Demonstration period in North Carolina, so the overall estimate for these measures includes all 6 quarters.

Table 7-34
North Carolina: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 2,389)	-49.88	[-163.62, 63.87]	35.71	[-51.09, 122.51]
Year Two (N = 2,303)	-14.03	[-84.55, 56.49]	-12.69	[-73.13, 47.75]
Year Three (N = 2,075)	-20.87	[-138.84, 97.11]	30.44	[-61.48, 122.36]
Overall (N = 2,916)	-21.05	[-92.12, 50.01]	25.68	[-32.16, 83.51]
Overall Aggregate	-\$1,472,913		\$1,796,378	
Acute-care				
Year One (N = 2,389)	-33.50	[-113.96, 46.97]	14.48	[-31.01, 59.97]
Year Two (N = 2,303)	-14.99	[-59.22, 29.24]	-10.46	[-41.11, 20.19]
Year Three (N = 2,075)	-51.36	[-117.32, 14.61]	3.37	[-30.26, 36.99]
Overall (N = 2,916)	-31.58	[-76.05, 12.90]	6.52	[-17.03, 30.06]
Overall Aggregate	-\$2,209,170		\$456,029	
ER visits not leading to hospitalization				
Year One (N = 2,389)	-3.56	[-15.85, 8.72]	-0.79	[-7.81, 6.24]
Year Two (N = 2,303)	-4.18	[-12.84, 4.47]	-0.26	[-5.02, 4.51]
Year Three (N = 2,075)	-2.17	[-12.85, 8.50]	1.80	[-4.59, 8.18]
Overall (N = 2,916)	-3.19	[-10.79, 4.41]	0.47	[-3.59, 4.53]
Overall Aggregate	-\$223,286		\$32,807	
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 2,389)	-11.15	[-22.92, 0.63]	-11.40*	[-18.17, -4.63]
Year Two (N = 2,303)	-13.58*	[-23.43, -3.74]	-8.13*	[-14.42, -1.84]
Year Three (N = 2,075)	-14.03*	[-26.87, -1.19]	-4.09	[-13.91, 5.74]
Overall (N = 2,916)	-12.18*	[-20.49, -3.87]	-7.77*	[-13.97, -1.56]
Overall Aggregate	-\$852,117*		-\$543,233*	

(continued)

Table 7-34 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicare expenditures among beneficiaries with behavioral health conditions: Thirteen quarters of the MAPCP Demonstration

Type of expenditure	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 2,389)	-22.68	[-59.65, 14.28]	-5.46	[-41.56, 30.65]
Year Two (N = 2,303)	-23.29	[-59.93, 13.35]	-21.34	[-49.45, 6.78]
Year Three (N = 2,075)	-26.16	[-87.58, 35.26]	8.89	[-25.69, 43.48]
Overall (N = 2,916)	-23.62	[-54.95, 7.70]	-3.62	[-23.16, 15.92]
Overall Aggregate	-\$1,652,658		-\$253,258	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, there was little evidence that the North Carolina MAPCP Demonstration slowed the growth of Medicare expenditures, with the exception of expenditures related to a behavioral health condition. Specifically, **Table 7-34** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, the growth in **overall aggregate expenditures for total services with a principal diagnosis of a behavioral health condition** was approximately \$852,000 lower for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices and approximately \$543,000 lower compared to those in non-PCMH practices.

No statistically significant *overall* impacts of the North Carolina MAPCP Demonstration were observed among Medicare beneficiaries with behavioral health conditions with respect to total Medicare expenditures, acute-care expenditures, expenditures for ER visits not leading to hospitalization, or expenditures for total services with a secondary diagnosis of a behavioral health condition. There was little evidence that the North Carolina MAPCP Demonstration slowed the growth of the examined Medicare expenditures.

Table 7-35
North Carolina: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid expenditures among beneficiaries with behavioral health conditions: Six quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicaid										
Year One	322	441.74	[-132.44, 1015.92]	206.48*	[36.42, 376.54]	473	-419.71*	[-653.52, -185.90]	-85.01	[-222.56, 52.55]
Year Two	260	444.37	[-170.49, 1059.23]	115.11	[-44.67, 274.90]	387	-18.89	[-366.19, 328.40]	94.44	[-63.19, 252.08]
Overall										
Overall Aggregate	329	442.59 \$1,950,953	[-135.70, 1020.89]	176.80* \$779,333*	[39.82, 313.78]	492	-282.73* -\$1,691,881*	[-418.21, -147.25]	-23.68 -\$141,699	[-141.39, 94.03]
Acute-care										
Year One	322	20.09*	[2.26, 37.91]	17.05*	[5.06, 29.05]	473	-36.49	[-85.80, 12.81]	-14.23	[-44.55, 16.09]
Year Two	260	13.43	[-1.52, 28.38]	9.24	[-3.90, 22.38]	387	27.21	[-27.46, 81.87]	41.97*	[19.48, 64.47]
Overall										
Overall Aggregate	329	17.92* \$79,008*	[2.52, 33.33]	14.51* \$63,980*	[3.22, 25.81]	492	-14.72 -\$88,106	[-60.49, 31.05]	4.98 \$29,776	[-17.83, 27.78]
ER										
Year One	322	14.71*	[3.78, 25.64]	5.88	[-2.01, 13.76]	473	1.81	[-22.55, 26.17]	-2.81	[-20.39, 14.76]
Year Two	260	7.00	[-8.19, 22.20]	1.38	[-7.99, 10.75]	387	11.70	[-15.29, 38.70]	20.34	[-2.12, 42.80]
Overall										
Overall Aggregate	329	12.21* \$53,812*	[1.07, 23.34]	4.41 \$19,461	[-2.22, 11.05]	492	5.19 \$31,058	[-17.45, 27.83]	5.10 \$30,525	[-11.03, 21.24]

(continued)

Table 7-35 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for PBPM Medicaid expenditures among beneficiaries with behavioral health conditions: Six quarters of the MAPCP Demonstration

Type of expenditure	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition										
Year One	322	443.48	[-79.57, 966.53]	172.71*	[21.48, 323.94]	473	-134.12*	[-259.13, -9.11]	72.24	[-23.46, 167.95]
Year Two	260	412.96	[-177.38, 1003.31]	97.11	[-46.10, 240.32]	387	90.75	[-66.63, 248.13]	188.19*	[49.64, 326.74]
Overall		433.56		148.15*			-57.27		111.87*	
Overall Aggregate	329	\$1,911,149	[-103.40, 970.53]	\$653,051*	[32.40, 263.91]	492	-\$342,700	[-122.08, 7.54]	\$669,420*	[3.93, 219.80]

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants with behavioral health conditions who were eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to *lower growth* in expenditures compared to the CG. A *positive* value corresponds to *greater growth* compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicaid children with behavioral health conditions, there was no evidence that the North Carolina MAPCP Demonstration slowed the growth of any of the examined expenditure categories. For Medicaid adults with behavioral health conditions, there was some evidence that the North Carolina MAPCP Demonstration slowed the growth of total Medicaid expenditures, but the results were inconsistent across CGs. Specifically, **Table 7-35** shows the following:

- Among Medicaid children with behavioral health conditions, the growth in *overall aggregate total Medicaid expenditures* was approximately \$779,000 greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.
- Among Medicaid children with behavioral health conditions, the growth in *overall aggregate total acute expenditures* was approximately \$64,000 greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.
- Among Medicaid children with behavioral health conditions, the growth in *overall aggregate expenditures for ER visits not leading to hospitalization* was approximately \$53,000 greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices.
- Among Medicaid children with behavioral health conditions, the growth in *overall aggregate expenditures for total services with a principal diagnosis of a behavioral health condition* was approximately \$653,000 greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.
- Among Medicaid adults with behavioral health conditions, the growth in *overall aggregate total Medicaid expenditures* was \$1.69 million lower for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices.
- Among Medicaid adults with behavioral health conditions, the growth in *overall aggregate expenditures for total services with a principal diagnosis of a behavioral health condition* was approximately \$669,000 greater for beneficiaries assigned to North Carolina MAPCP Demonstration practices compared to those in non-PCMH practices.

No statistically significant *overall* impacts of the North Carolina MAPCP Demonstration were observed among adult beneficiaries on the acute-care expenditures or expenditures for ER visits not leading to hospitalization. There was little evidence that the North Carolina MAPCP Demonstration slowed the growth of the examined Medicaid expenditures.

Table 7-36

**North Carolina: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Thirteen quarters of the MAPCP Demonstration**

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 2,389)	1.22	[-10.71, 13.14]	-3.14	[-12.95, 6.68]
Year Two (N = 2,303)	6.73	[-6.83, 20.29]	6.88	[-2.17, 15.93]
Year Three (N = 2,075)	-1.74	[-15.15, 11.67]	9.33	[-1.02, 19.68]
Overall (N = 2,916)	2.71	[-5.33, 10.75]	5.92	[-0.96, 12.80]
Overall Aggregate	63		138	
ER visits not leading to hospitalization				
Year One (N = 2,389)	18.77	[-35.60, 73.14]	9.04	[-23.32, 41.41]
Year Two (N = 2,303)	-2.80	[-39.77, 34.17]	-12.09	[-38.73, 14.55]
Year Three (N = 2,075)	-18.45	[-50.88, 13.99]	-5.75	[-35.51, 24.02]
Overall (N = 2,916)	-1.37	[-31.17, 28.43]	-2.11	[-25.53, 21.32]
Overall Aggregate	-32		-49	
Behavioral health inpatient admissions				
Year One (N = 2,389)	-3.19	[-6.46, 0.08]	-3.27*	[-6.38, -0.16]
Year Two (N = 2,303)	-4.78*	[-9.22, -0.33]	-4.04*	[-6.76, -1.32]
Year Three (N = 2,075)	-3.75	[-8.08, 0.58]	-3.16*	[-5.71, -0.61]
Overall (N = 2,916)	-3.56*	[-6.87, -0.25]	-3.30*	[-5.81, -0.80]
Overall Aggregate	-83*		-77*	
Behavioral health ER visits				
Year One (N = 2,389)	-2.37	[-9.76, 5.01]	-3.71	[-9.77, 2.34]
Year Two (N = 2,303)	-4.07	[-10.43, 2.30]	-1.93	[-7.62, 3.76]
Year Three (N = 2,075)	-4.38	[-11.21, 2.45]	0.03	[-5.28, 5.35]
Overall (N = 2,916)	-3.24	[-7.89, 1.40]	-1.94	[-5.80, 1.92]
Overall Aggregate	-76		-45	

(continued)

Table 7-36 (continued)
North Carolina: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Thirteen quarters of the MAPCP Demonstration

Outcome	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits				
Year One (N = 2,389)	28.89	[-17.64, 75.43]	24.19	[-21.85, 70.23]
Year Two (N = 2,303)	21.37	[-13.87, 56.61]	30.68	[-12.78, 74.14]
Year Three (N = 2,075)	28.03	[-11.60, 67.66]	1.93	[-42.43, 46.29]
Overall (N = 2,916)	26.64	[-10.43, 63.71]	20.87	[-12.57, 54.32]
Overall Aggregate	621		487	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters to date.
- Numbers in parentheses represent sample sizes of unique North Carolina MAPCP Demonstration participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters. Quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared to the CG. A *positive* value corresponds to an *increase* in the rate of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, the North Carolina MAPCP Demonstration lowered the rate of behavioral health inpatient admissions but otherwise had no impact on the examined health care utilization measures. Specifically, **Table 7-36** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, **behavioral health inpatient admissions** decreased by an *overall aggregate* of 77 admissions among those assigned to North Carolina MAPCP Demonstration practices compared to those in PCMH practices, and decrease by 83 admissions compared to those in non-PCMH practices.

No statistically significant overall impacts of the North Carolina MAPCP Demonstration were found for Medicare beneficiaries with behavioral health conditions when we examined all-cause inpatient admissions, ER visits not leading to hospitalization, behavioral health ER visits, and behavioral health outpatient visits. While the North Carolina MAPCP Demonstration lowered the rate of behavioral health admissions, there were no other impacts observed.

Table 7-37

**North Carolina: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Six quarters of the MAPCP Demonstration**

Outcome	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions										
Year One	555	0.31	[-0.38, 0.99]	0.51	[-0.34, 1.35]	2,246	-1.15	[-3.63, 1.33]	-0.83	[-2.60, 0.95]
Year Two	991	0.31	[-0.54, 1.17]	0.58	[-0.51, 1.67]	4,035	0.88	[-1.99, 3.76]	1.98	[-0.24, 4.21]
Overall		0.31		0.53			-0.46		0.13	
Overall Aggregate	1,340	5	[-0.38, 1.00]	8	[-0.35, 1.41]	5,485	-9	[-2.29, 1.37]	3	[-1.04, 1.30]
ER visits not leading to hospitalization										
Year One	555	0.59	[-3.03, 4.22]	1.10	[-1.47, 3.67]	2,246	4.21	[-1.41, 9.82]	-2.31	[-6.57, 1.95]
Year Two	991	1.31	[-3.01, 5.62]	-3.32	[-7.42, 0.79]	4,035	3.56	[-4.11, 11.22]	1.75	[-3.91, 7.40]
Overall		0.83		-0.34			3.99		-0.92	
Overall Aggregate	1,340	12	[-1.42, 3.08]	-5	[-2.69, 2.02]	5,485	80	[-1.59, 9.56]	-18	[-4.61, 2.76]
Behavioral health inpatient admissions										
Year One	555	N/A	N/A	0.39	[-0.39, 1.18]	2,246	0.42	[-0.36, 1.20]	-0.10	[-0.66, 0.46]
Year Two	991	N/A	N/A	-0.08	[-0.58, 0.41]	4,035	-0.36	[-1.09, 0.37]	0.31	[-0.34, 0.97]
Overall		N/A		0.24			0.16		0.04	
Overall Aggregate	1,340	N/A	N/A	3	[-0.35, 0.83]	5,485	3	[-0.39, 0.70]	1	[-0.45, 0.53]
Behavioral health ER visits										
Year One	555	0.14	[-0.64, 0.93]	0.20	[-0.41, 0.80]	2,246	0.16	[-2.92, 3.24]	-0.38	[-1.92, 1.16]
Year Two	991	0.31	[-0.45, 1.07]	0.35	[-0.28, 0.97]	4,035	-1.36	[-2.89, 0.17]	-0.34	[-1.12, 0.45]
Overall		0.20		0.25			-0.36		-0.37	
Overall Aggregate	1,340	3	[-0.55, 0.95]	4	[-0.28, 0.77]	5,485	-7	[-2.11, 1.40]	-7	[-1.48, 0.75]

(continued)

Table 7-37 (continued)

**North Carolina: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Six quarters of the MAPCP Demonstration**

Outcome	Children					Adults				
	N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs		N	North Carolina MAPCP Demonstration vs. CG PCMHs		North Carolina MAPCP Demonstration vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits										
Year One	555	-9.91*	[-18.32, -1.50]	-5.62	[-11.36, 0.13]	2,246	2.34	[-10.18, 14.85]	4.60	[-3.81, 13.02]
Year Two	991	-2.94	[-11.20, 5.33]	-7.18*	[-14.27, -0.08]	4,035	0.25	[-10.64, 11.14]	-0.34	[-7.85, 7.17]
Overall		-7.65*		-6.12*			1.62		2.91	
Overall Aggregate	1,340	-112*	[-14.99, -0.30]	-90*	[-11.01, -1.24]	5,485	32	[-9.75, 13.00]	58	[-4.10, 9.92]

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique North Carolina MAPCP Demonstration participants with behavioral health conditions who were eligible for the measure.
- Because of the transition to NCTracks, North Carolina was able to provide Medicaid claims only through March 31, 2013.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 6 quarters, and quarters 5 and 6 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared to the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to MAPCP Demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults with behavioral health conditions, there was little evidence that the North Carolina MAPCP Demonstration reduced the likelihood of any of the examined utilization measures, with the exception of one measure among Medicaid children. Specifically, **Table 7-37** shows the following:

- Among Medicaid children with behavioral health conditions assigned to North Carolina MAPCP practices, the *overall aggregate* number of beneficiaries with a **behavioral health outpatient visit** decreased by 112 compared to beneficiaries in PCMH practices and decreased by 90 compared to beneficiaries in non-PCMH practices.

No statistically significant *overall* impacts of the North Carolina MAPCP Demonstration were observed among Medicaid children or adult beneficiaries on the acute-care expenditures or expenditures for ER visits not leading to hospitalization. There was little evidence that the North Carolina MAPCP Demonstration slowed the growth of the examined Medicaid expenditures.

7.7.3 Discussion of Special Populations

While North Carolina did not target specific special populations explicitly, many of the network and practice PCMH activities focused on high-risk subpopulations, such as people at high risk for hospital readmission, people with multiple chronic conditions, people with polypharmacy, patients in care transitions, and beneficiaries dually eligible for Medicare and Medicaid. Thus network care management and clinical pharmacy services, where appropriate, are targeted at these patient groups. Site visit interviewees reported that helping these patients better manage their conditions and assisting them in obtaining evidence-based care was expected to lead to more appropriate use of health services and better health outcomes, which could, in turn, result in lower rates of total expenditure growth for these patients.

Among the special populations identified by demographic or health characteristics, there was no evidence that the North Carolina MAPCP Demonstration slowed the growth of total Medicare or total Medicaid expenditures, with the exception of Medicaid adults with behavioral health conditions.

We expected variation in measures by network because of the differences in demonstration implementation discussed in **Section 7.1.1**, so we examined the four participating Networks separately. We found that MAPCP Demonstration practices in Network 2 (those in Transylvania County) were quite successful in slowing the growth of total Medicare and total Medicaid expenditures. As previously noted, this network included an integrated health system that conducted concerted quality improvement activities throughout the demonstration period and physicians were highly proficient with the system's EHR, which was core to all quality improvement activities and related communications.

For the subset of beneficiaries with multiple chronic conditions and diabetes, there was some evidence that the North Carolina MAPCP Demonstration increased the process of care screenings, although these results were not consistent across CGs. For the entire population of diabetic patients, there were no statistically significant overall effects of the North Carolina MAPCP Demonstration on the process of care (see **Table 7-10** and **Table 7-11**). The process of care results for diabetics with multiple chronic conditions may indicate that these patients were appropriately identified for additional care management services. However, there were no

reductions in hospitalizations for avoidable catastrophic events. Despite the increased focus on supporting patients with multiple chronic conditions by providing care management services, the rate of chronic PQIs was not significantly different for beneficiaries with multiple chronic conditions assigned to MAPCP Demonstration practices. Some site visit interviewees suggested that 3 years was not adequate time to observe the impact of care management and clinical pharmacy services on chronic illness outcomes.

We found no statistically significant overall differences in most of the access to care and coordination of care measures among Medicare and Medicaid beneficiaries with multiple chronic conditions, including primary care visits and percent of visits that were primary care. This result contradicts expectations that patients with multiple chronic conditions might have shifted to a higher concentration of primary care visit, as MAPCP Demonstration practices sought to manage their conditions better and prevent adverse medical events. The increase in the rate of surgical specialist visits among Medicare beneficiaries with multiple chronic conditions mirrored that result for all MAPCP Demonstration beneficiaries and may be a reflection of increased access to specialist care that was a focus of some MAPCP Demonstration practices.

Although we expected practice and network PCMH activities targeted at demonstration beneficiaries with multiple chronic conditions to lower their ER utilization, we found no evidence of a reduction in the rate of ER visits not leading to hospitalization relative to the CG beneficiaries, among either Medicare beneficiaries or adult Medicaid beneficiaries. These results were consistent with site visit interviewee concerns that PCMH activities were not changing patients' ER utilization behaviors and beneficiary feedback regarding limited access to care during nonwork hours and limited awareness about existing processes and services.

In our in-depth examination of beneficiaries with behavioral health conditions, we found very little evidence that the North Carolina MAPCP Demonstration slowed the growth of Medicare or Medicaid expenditures. Only for adult Medicaid enrollees with behavioral health conditions relative to the PCMH CG did we find significantly lower expenditures. In addition, there were few impacts of the North Carolina MAPCP Demonstration on utilization, with lower rates of behavioral health inpatient admissions for Medicare beneficiaries and fewer Medicaid children with a behavioral health outpatient visit. During our Year One and Year Two site visits, interviewees at the practice, network, and state levels reported a lack of adequate behavioral health care services in most communities; interviewees believed that this lack of services led to unmet behavioral health care needs and to higher rates of ER use to address behavioral health care needs. Addressing the unmet behavioral health needs may result in overall increases in cost and utilization.

7.8 Discussion of the North Carolina MAPCP Demonstration

The North Carolina MAPCP Demonstration was established in October 2011 when Medicare, BCBSNC, and the State Employee Health Plan joined Medicaid in making additional payments to practices in seven rural counties across the state and four regional CCNC networks to support PCMH activities. With CCNC overseeing operations, the demonstration sought to improve quality, access, and care coordination and to promote appropriate utilization of resources to manage health care costs. CCNC and its networks supported participating primary care practices through a centralized health IT system, care management and clinical pharmacy services, and quality improvement resources. The initiative focused on managing transitions

across care settings and analyzing data to identify the patients who would benefit most from care management efforts.

Despite nearly 2 decades of experience in providing PCMH services to the Medicaid population, full implementation of North Carolina's multi-payer model took longer and achieved less success than anticipated initially. There was little evidence of significant demonstration-wide changes in the quality of care, access to and coordination of care, or Medicare or Medicaid utilization and expenditures for MAPCP Demonstration practices relative to the PCMH and non-PCMH CG practices. The multi-payer model did not transfer easily or quickly to Medicare and commercial populations for several external and internal reasons.

CCNC networks and participating practices faced a learning curve serving the new Medicare and commercial populations. Deployment of different models and processes for care management services (in-person to Medicaid and Medicare patients and by telephone to the commercial population) created challenges and limitations to care management services. Over the course of the MAPCP Demonstration, very few additional care managers were hired to serve the new population. Instead, they served the new population through increased workloads seeking to address the needs of very different groups of patients— Medicaid, Medicare, and dually eligible—and coordinating telephone care management activities for the privately insured. Understanding the needs and ways of working with these new groups of patients required new knowledge and approaches as well, all of which took time and might have resulted in reduced efficiencies at the beginning. Further, the impacts of care management and clinical pharmacy services at the population level may have been unattainable, as the number of patients to whom care managers could provide outreach and services was simply too low for statistically significant results for the population-level analyses. In addition, the lack of such changes also might have been difficult to observe in just 3 years, as noted by CCNC staff.

Delays associated with putting administrative processes in place for data sharing, incorporating multi-payer data streams into CCNC's Informatics Center, and making the transition to the new Medicaid billing system halted several core activities at the heart of the North Carolina MAPCP Demonstration. These core activities included the ability to identify patients with multiple chronic conditions, to identify gaps in care, to prioritize care management for patients transitioning among different care settings, and to identify unnecessary ER utilization, admissions, or readmissions. Further, the lack of standardized payment models— enhanced FFS rates by commercial payers and PBPM payments by Medicare and Medicaid— contributed to a lack of clarity about financial incentives to practices.

While NCQA PPC® PCMH™ recognition and BCBSNC BQPP accreditation were perceived as effective mechanisms that drove practice transformation, practices spent 2 out of 3 demonstration years in meeting accreditation requirements. Network and practice staff reported frustration with being required to meet two sets of standards and noted that the time spent meeting BQPP requirements in the second year of the demonstration reduced the time that could have been spent on patient care improvements. Throughout the evaluation, state officials, CCNC staff, and providers all expressed concern that a 3-year demonstration was not a long enough time period to produce measurable results, particularly when the first 2 years were spent in meeting accreditation requirements. The lack of improvements in quality of care and access to care and the lack of reductions in total expenditures and utilization seen in this evaluation may

partly reflect that the practices were not able to fully focus on improvements to patient care until the third year of the North Carolina MAPCP Demonstration.

Despite these challenges, at the end of the MAPCP Demonstration, practices overall were more engaged in care management and coordination, in identifying needed preventive care for their patients, in implementing quality improvement activities, and in using their EHRs. Despite some improvements and progress toward practice transformation, the results of the Practice Transformation Index were that only 60 percent of 23 PCMH activities were implemented at a high level. Further, while North Carolina performed comparably for 13 of the PCMH activities, for the remaining 10 PCMH activities described in the survey, the state reported a significantly lower level of adoption compared to the average across all eight participating MAPCP Demonstration states.

Results from the CAHPS PCMH survey with Medicare beneficiaries mirrored the efforts described by practices to enhance communication and care coordination, as most respondents believed that their providers listened carefully to them, showed respect for what they had to say, and explained things in a way that was easy to understand. Feedback received during the focus groups, however, especially from Medicaid and dually eligible patients, was more negative, and some reported being rushed through their primary care visits, having their concerns about mental health dismissed, and feeling stigmatized. These findings indicate that more effort was needed with respect to communication and patient satisfaction within the Medicaid and dually eligible groups. The CAHPS PCMH survey and focus group feedback from all patients also indicated that access to care and care coordination were still quite limited for patients in rural areas. While rural settings had the greatest need for PCMH services, those settings also might present greater challenges to improving care outcomes. Standard practice transformation activities that are expected to improve access to care and care coordination might not be as effective in rural areas. As we learned from both patients and providers, practice transformation efforts should be accompanied by patient education so that new processes and resources are used by those for whom they are intended.

Implementation of the MAPCP Demonstration in North Carolina varied across its networks, as the networks differed in size, infrastructure, resources, and degrees of innovation. Network 2 in the western part of the state stood out among the other networks for achieving statistically significant decreases in total Medicare expenditures, acute-care expenditures, physician expenditures, and 30-day unplanned readmissions. This network had a higher ratio of care managers per practice (0.6 in contrast to 0.3 in Networks 1 and 3) and previously had established quality improvement activities, including those addressing palliative care.

In sum, North Carolina's experience suggests that prior medical home experience and processes designed to serve the Medicaid population did not easily translate to benefits for Medicare and dually eligible populations. Successful transformation required more rapid start-up, better coordination with private payers, uniform and higher capacity of care management services across payers and networks, and, most importantly, efforts to raise patients' awareness about the available services to change utilization patterns.

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CHAPTER 8 MINNESOTA

Overview of Minnesota Evaluation Results

Minnesota's Health Care Homes (HCH) initiative, a cornerstone of the state's comprehensive health care reform law enacted in 2008, was intended to transform Minnesota's primary care delivery system to improve population health, improve patients' experience of care, and reduce the per capita costs of care. Prior legislation established HCH intended to serve complex populations in public programs; the 2008 law built upon the initial design by mandating the participation of Medicaid, the state employee group insurance program, and non-Employee Retirement Income Security Act (ERISA) private insurance plans, and by launching a statewide HCH certification program. Medicare fee-for-service (FFS) joined the state initiative as a payer in October 2011 as part of the MAPCP Demonstration. Medicare Advantage plans did not participate in the demonstration, nor did self-funded employer health insurance plans, which are exempt from state law.

Below are some of the key findings from the MAPCP Demonstration in Minnesota:

- Approximately 160,000 Medicare beneficiaries and 685,000 Medicaid beneficiaries were served by HCH practices during the MAPCP Demonstration. By the end of the demonstration in December 2014, 2,732 health care providers in 213 practices were eligible to earn demonstration payments from Medicare through the initiative.
- Practices uniformly praised the state's HCH delivery model, even though many providers opted not to submit claims for demonstration payments on an ongoing basis due to the expense of modifying their billing systems to generate claims without a face-to-face visit, and the need to convince patients to opt in to the demonstration. Over the course of the MAPCP Demonstration, Medicare paid out only \$2.4 million in demonstration fees to practices to support the infrastructure and services provided as part of the initiative—instead of the \$60.9 million the state had originally expected.
- After accounting for the demonstration fees paid by Medicare, the MAPCP Demonstration increased Medicare spending by \$88 million over 3 years, relative to the comparison group (CG). This overall increase in Medicare spending under the demonstration resulted from a combination of increases in some expenditure categories (e.g., acute care, post-acute care [PAC], outpatient care, home health services, emergency room [ER] visits) and decreases in others (e.g., specialty care, primary care, imaging, laboratory tests).
- The MAPCP Demonstration had different impacts on care quality and utilization for Medicare and Medicaid beneficiaries. Among Medicare beneficiaries, there were no impacts on many of the clinical process-of-care quality and utilization measures, relative to the CG. Among adult Medicaid beneficiaries, being cared for by a MAPCP Demonstration practice yielded more primary care and specialist visits and substantial increases in the likelihood of receiving a range of recommended services. However,

Medicaid beneficiaries also had a slightly higher rate of being admitted to the hospital. These different Medicare and Medicaid findings may be driven by differences between MAPCP Demonstration and comparison practices in their baseline expenditures and utilization.

- The most transformative change that practices adopted to become a certified HCH was hiring care coordinators. Care coordinators were a relatively new role in many practices and there was much experimentation, with practices having coordinators fulfill different roles and refining their job responsibilities over time. Care coordinators initially focused on developing individualized care plans, tracking referrals to ensure that practice records were complete and up to date, and using electronic searchable registries to identify patients overdue for a preventive service. In later years, care coordinators put more emphasis on identifying and referring patients to social supports in the community, educating patients to better self-manage their conditions, and following up with patients who had been discharged from a hospital or seen in an ER. Team-based care and making sure that all practice staff members were working “at the top of their license” were also more of a focus in later years.
- HCHs were encouraged to target Medicare beneficiaries with multiple chronic conditions and behavioral health conditions with enhanced care management services. Medicare beneficiaries with multiple chronic conditions who were served by MAPCP Demonstration practices generated higher spending on a range of services, including ER visits, acute care, outpatient care, and home health services. Medicare beneficiaries with behavioral health conditions also generated statistically significantly higher spending overall, and on ER visits specifically. More encouraging trends were observed for Medicaid patients with these same conditions.
- HCH practices were required to offer round-the-clock access to care, such as through phone lines staffed by a clinician with access to patients’ medical records. Yet only two-thirds of Medicare beneficiaries surveyed reported getting answers to medical questions after office hours, and practices reported that patients were often unaware of the availability of their after-hours phone line. Practices often worked on educating patients about these phone lines in later years of the demonstration. Consistent with these challenges, the HCH initiative did not reduce the rate of ER visits for either Medicare or Medicaid beneficiaries relative to comparable beneficiaries in non-PCMH comparison practices.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to the HCH initiative, Minnesota’s multi-payer medical home initiative that added Medicare as a payer in 2011 to implement the MAPCP Demonstration. We report findings from:

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Minnesota in late 2012, 2013, and 2014;

- a patient experience survey fielded among Medicare FFS beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys conducted among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary documents, such as state demonstration applications, state progress reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from participating practices in Minnesota more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) patient-centered medical home (PCMH) survey among Medicare FFS beneficiaries. Nine focus groups were held in Minnesota: five in the Twin Cities region (Minneapolis/St. Paul) and four in northern Minnesota (Brainerd) in November 2014. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), beneficiaries dually eligible for both Medicare and Medicaid, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Groups ranged in size from three to eight participants, for a total of 54 participants. See *Appendix O* for more details about focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May of 2014 to a random sample of 1,463 Medicare beneficiaries attributed to demonstration practices during Quarter 7. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In Minnesota, a 43.3 percent response rate was achieved with a total of 602 completed surveys—results that exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we conducted an online survey among all practices participating in the MAPCP Demonstration, including the 284 Minnesota practice sites participating in the demonstration at the time of our survey. A total of 126 of these practice sites completed the survey, including 188 provider respondents.

This chapter is organized by major evaluation domains. *Section 8.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in the HCH initiative. *Section 8.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (*Section 8.3*); access to care and coordination of care (*Section 8.4*); beneficiary experience with care (*Section 8.5*); effectiveness as measured by health care

utilization and expenditures (*Section 8.6*); and special populations (*Section 8.7*). The chapter concludes with a discussion of the findings (*Section 8.8*).

8.1 State Implementation

In this section, we present findings related to the implementation of Minnesota's HCH initiative and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the HCH initiative?
- Were any major implementation issues encountered during the evaluation period, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in *Section 8.1.1*, which describes the major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by Minnesota HCH initiative staff; monthly calls between HCH initiative staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. *Section 8.1.2* presents a logic model that reflects our understanding of the link between specific elements of the HCH initiative and expected changes in outcomes. *Section 8.1.3* presents key findings gathered from the site visits and other sources regarding the implementation experience of state officials, payers, and providers during the evaluation period. *Section 8.1.4* concludes the State Implementation section with lessons learned.

8.1.1 Minnesota State Profile as of December 2014

The Minnesota HCH initiative, under the auspices of the Minnesota Department of Health (DOH) and the Minnesota Department of Human Services, is a cornerstone of the state's comprehensive health care reform law enacted in 2008. It is intended to transform Minnesota's primary care delivery system to improve population health, improve patients' experience of care, and reduce the per capita cost of care. Prior legislation established HCH intended to serve complex populations in public programs; the 2008 HCH initiative built upon the initial design by mandating the participation of Medicaid, the state employee group insurance program, and certain private insurers, and by launching a statewide PCMH certification program. Medicare joined the state initiative as a payer on October 1, 2011 and ceased participating in the state initiative on December 31, 2014. The HCH initiative continued after this date without Medicare as a demonstration payer, although HCHs and other providers are now able to take advantage of a new fee added to the Medicare Physician Fee Schedule by submitting monthly claims for chronic care management services.

State environment. The 2008 health reform legislation required the development of certification standards for HCHs, care coordination payments from both public and private payers, provider reporting of standardized quality measures, and the use of all-payer encounter data for "provider peer grouping" to facilitate informed consumer choice, among other changes.

It also required the development of definitions for seven initial “baskets of care,” which are groupings of various health care services associated with treating specific health conditions, such as diabetes, and quality measures for each type of care basket. The Minnesota DOH developed certification standards for HCHs, and the Minnesota Department of Human Services was involved in developing a multitier payment methodology (described below) for Medicaid to use to pay participating HCH providers.

Minnesota’s primary care providers (PCPs) are often part of large, integrated health systems or multispecialty group practices that include nationally recognized health care leaders, such as the Mayo Clinic and HealthPartners. Only nonprofit health plans are permitted by law to sell fully insured products in the state. Self-insured employer plans, not subject to the 2008 law that created the statewide HCH initiative, cover roughly 40 percent of the state’s population. As of 2014, data compiled by the Kaiser Family Foundation showed that the state had the highest managed care penetration rate in Medicare in the country, at 51 percent.¹ Medicare Advantage enrollees were not included in the MAPCP Demonstration, and providers could not receive HCH payments on their behalf.

The state has encouraged the adoption and use of health information technology (health IT) through many policies and activities. For example, state law required all hospitals and other health care providers to have an interoperable electronic health record (EHR) system in place by 2015, and providers have been required to use e-prescribing since 2011. State law also requires health care providers to submit data on quality measures to the Minnesota DOH as part of the Statewide Quality Reporting and Measurement System (SQRMS). Providers submit SQRMS data to a contracted measure development and data collection vendor, Minnesota Community Measurement, which is a multi-stakeholder organization founded by health plans. Most providers submit these data electronically. Health plans and third-party administrators are also required to submit data to a multi-payer claims database, which the state believes is one of the most robust and complete in the nation.

Minnesota had several other programs in the state operating concurrently with the HCH initiative that may have affected outcomes for participants in the demonstration or in the comparison population:

- A Section 646 Medicare Health Quality Demonstration related to advanced care planning operated in four southeastern Minnesota counties from 2010 to 2014. These counties were precluded from participating in the MAPCP Demonstration and were not considered for inclusion in the CG for this evaluation, but they were able to receive HCH payments from payers in the state other than Medicare.
- A Beacon Community grant (concluded in 2014) to 11 counties in the southeast region of the state focused on connecting participating providers’ EHRs.
- A 3-year Systems Integration Grant, concluded in 2014, involved the Aging Services Division of the Minnesota Department of Human Services and the regional Area Agencies on Aging. The aim was to build closer connections between the HCHs and

¹ <https://kaiserfamilyfoundation.files.wordpress.com/2014/05/8588-exhibits-medicare-advantage-2014-spotlight-enrollment-market-update.pdf>

services for the aging. The Minnesota Board on Aging received the grant in September 2011.

- Beginning in 2011, five community transformation grants from the Centers for Disease Control and Prevention (CDC) were awarded to communities in Minnesota. Staff supported by these grants participated in prevention-focused educational sessions offered as part of HCH learning collaboratives.
- The Integrated Health Partnerships (IHP) Demonstration, formerly called the Medicaid Health Care Delivery Systems (HCDS) Demonstration, was approved by CMS in August 2012 to support voluntary shared savings accountable care organization (ACO) models in Medicaid. The demonstration rewarded groups of providers and integrated delivery systems that achieved savings beyond a total cost-of-care target without compromising quality. The demonstration implemented six initial IHP contracts in early 2013 and three more in 2014.
- In February 2013, the state received a CMS State Innovation Model (SIM) Initiative Model Testing award, which allowed the state to allocate new resources to efforts to expand its health information exchange (HIE) and health IT infrastructure; develop a workforce of community health workers and care coordinators; and support primary care physicians seeking to transform their practices into HCHs. Minnesota also built on the IHP Demonstration to expand ACO capacity and created 12 Accountable Communities for Health that can address a variety of community populations and service needs.
- Minnesota received a planning grant from CMS to develop a Medicaid state plan amendment to implement Section 2703 Health Homes under the authority of the Affordable Care Act (ACA). Behavioral Health Homes now coordinate care for Medicaid beneficiaries with serious mental illness, multiple chronic conditions, or both.
- In January 2014, Minnesota implemented the option under the ACA to expand Medicaid eligibility to all adults with incomes of up to 138 percent of the federal poverty level (FPL).²

Demonstration scope. Minnesota's multi-payer HCH initiative operated statewide starting in 2011, and HCH practices in all but the four counties participating in the Section 646 Medicare Health Quality Demonstration were eligible to receive monthly MAPCP Demonstration payments from Medicare. For the purposes of this evaluation, we considered practices that became certified as an HCH and were *eligible* to receive MAPCP Demonstration payments—regardless of whether they actually *received* MAPCP Demonstration payments—as participating in the MAPCP Demonstration. Although only a subset of eligible HCH practices chose to submit claims regularly for MAPCP Demonstration fees, both the state staff who led Minnesota's HCH initiative (who conducted in-depth site visits to all practices seeking certification) and the federal evaluators of the state initiative (who interviewed a sample of

² The ACA expanded Medicaid eligibility to individuals with incomes up to 133 percent of the FPL; however, there is a 5 percent income disregard, so the income limit is effectively 138 percent of the FPL.

practices that were and were not receiving MAPCP Demonstration payments) believe it is accurate to consider these practices as having participated in the HCH initiative even if they did not receive demonstration payments. This is because (1) practices transformed the way they delivered care, including hiring dedicated care coordinators and offering 24-hour-a-day, 7-day-a-week access to care; (2) practices usually received HCH payments from private payers that at least partially covered the cost of the practice transformations; and (3) practices tended to engage in enhanced care coordination activities for all patients, regardless of payer.

Table 8-1 shows participation in the Minnesota MAPCP Demonstration at the end of Years One, Two, and Three of the demonstration and the end of the evaluation period (December 31, 2014). As the state certified practices as HCHs on a rolling basis throughout this period, the number of practices eligible for HCH payments steadily increased, although it lagged somewhat behind the state's original projections. The state had hoped to have 340 practices certified and receiving monthly care coordination payments through the MAPCP Demonstration, but by the end of Minnesota's involvement in the MAPCP Demonstration (December 31, 2014), only 213 practices had become certified as HCHs and were eligible to receive demonstration payments from Medicare. This nevertheless is a large number of practices, and many more than participated in most other MAPCP Demonstration states. Certified HCH practices were clustered in the Minneapolis–St. Paul metropolitan area, although certified HCHs existed throughout the state (data not shown).

The number of participating Medicare providers followed a similar trajectory as the overall number of practices participating—roughly doubling over the evaluation period as the initiative continuously grew in size. The number of HCH initiative providers eligible to receive HCH payments from any payer also nearly doubled over the evaluation period.

The cumulative number of Medicare FFS beneficiaries ever participating in the demonstration for 3 or more months increased by 143 percent over the demonstration evaluation period, from 65,612 to 159,435. Meanwhile, the cumulative number of Medicaid beneficiaries who ever participated for 3 or more months increased by 93 percent, from 355,368 at the end of the first year to 685,104 by the end of the evaluation period. The state originally projected that 1,535,366 individuals would participate in the HCH initiative across all payers by the end of Year Three of the MAPCP Demonstration. The number of all-payer participants estimated by the state increased by 48 percent over the course of the MAPCP Demonstration but still fell short of their projected participation target by 543,231 individuals, or 35 percent. Although a comparable number of Medicare- and Medicaid-accepting practices participated in the demonstration, participating practices had four times as many Medicaid FFS and Medicaid managed care beneficiaries than Medicare FFS beneficiaries to care for.

Table 8-1
Minnesota: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants in the Minnesota HCH initiative

Participating entities	Number as of September 30, 2012	Number as of September 30, 2013	Number as of September 30, 2014	Number as of December 31, 2014
Medicare				
HCH practices ¹	97	136	208	213
HCH practices that submitted claims to receive demonstration payments	93	130	167	171
HCH providers ¹	1,468	1,704	2,698	2,732
Medicare FFS beneficiaries ²	65,612	106,635	159,460	159,435
Medicare FFS beneficiaries for whom demonstration payments were received	2,834	5,701	8,318	8,615
Medicaid				
HCH practices ³	125	186	193	193
Medicaid beneficiaries ³	355,368	495,845	645,061	685,104
All-payer				
HCH practices ⁴	139	248	288	288
HCH providers ⁴	1,194	2,257	2,604	2,604
All-payer participants ⁴	506,772	904,169	1,050,003	1,050,003

NOTES:

- The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a HCH initiative practice and participated in the HCH initiative for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent-to-treat design of our evaluation. The number of all-payer participants also represents the number of individuals who were ever attributed to a HCH initiative practice.
- HCH initiative practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating HCH practices and participated in the demonstration for at least 3 months. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating HCH practices and participated in the demonstration for at least 3 months.
- HCH practices under the Medicaid heading include only those practices with attributed Medicaid beneficiaries.
- The number of participating Medicaid providers could not be determined using the Medicaid FFS claims and managed care encounter files.
- The subset of HCH practices that chose to submit claims to Medicare for monthly MAPCP Demonstration fees is much smaller than the number of HCH initiative practices and is not shown in this table.
- The all-payer numbers are derived from the state using their own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; FFS = fee-for-service; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice.

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³Minnesota Medicaid enrollment and FFS claims and managed care encounter files (see *Chapter 1* for more detail about these files);

⁴Minnesota Quarterly Reports to CMS.

Minnesota was unique in the demonstration because, rather than using an attribution method for determining MAPCP Demonstration payments, providers were instead required to

submit monthly claims to receive HCH payments from Medicare FFS and Medicaid FFS. A large proportion of the 213 certified HCH practices that were eligible for MAPCP Demonstration payments submitted at least one claim to receive these monthly care coordination payments by the end of the evaluation period, although most practices did not bill Medicare consistently for payments throughout the demonstration—as shown by the relatively small number of Medicare FFS beneficiaries for whom practices submitted claims for demonstration payments (shown in *Table 8-1*). As described in *Section 8.2.3*, the state’s efforts to encourage certified HCH practices to bill for monthly HCH care coordination payments were only minimally successful.

Medicaid, the state employee group insurance program, and commercial plans not subject to the federal ERISA were required by Minnesota’s 2008 health care reform legislation to make care coordination payments to certified HCHs. (Seven such commercial plans were in the market.) The state estimated that as of December 31, 2014, the distribution of HCH patients by payment source was 17 percent Medicare FFS, 6 percent Medicaid FFS, 19 percent Medicaid managed care, 54 percent fully insured private insurance, and 4 percent state employee group insurance program.

Table 8-2 displays the characteristics of the practices that participated in the HCH initiative as of the end of the evaluation period (December 31, 2014). There were 213 participating practices, with an average of 13 providers per practice. Most of these were office-based practices (92%). An additional 6 percent were rural health clinics (RHCs), and 2 percent were federally qualified health centers (FQHCs). There were no critical access hospitals (CAHs). Seventy-eight percent of practices were located in metropolitan counties, 11 percent in micropolitan counties, and 11 percent in rural counties.

Table 8-2
Minnesota: Characteristics of practices participating in the Minnesota HCH initiative as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	213	193
Number of providers (total)	2,732	—
Number of providers per practice (average)	13	—
Practice type (%)		
Office-based practice	92	
FQHC	2	6
CAH	0	1
RHC	6	11
Practice location type (%)		
Metropolitan	78	—
Micropolitan	11	—
Rural	11	—

NOTES:

- Minnesota did not provide a count of the unique number of participating MAPCP Demonstration Medicaid providers.
- Practice location type could not be determined using the Medicaid claims files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = rural health clinic.

SOURCE: ¹ARC Q14 MAPCP Demonstration Provider File; ²Minnesota Medicaid enrollment and claims files. (See *Chapter 1* for more detail about these files.)

In **Table 8-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating HCH practices during the evaluation period (October 1, 2011 through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration are not included in our evaluation or in this analysis. Twenty-seven percent of the beneficiaries assigned to HCH practices during the evaluation period were under the age of 65; 36 percent were ages 65–75; 25 percent were ages 76–85; and 12 percent were over the age of 85. The mean age was 69. Beneficiaries were mostly White (90%). Seventy-four percent lived in urban areas, and 57 percent were female. Twenty-three percent were dually eligible for Medicare and Medicaid, and 32 percent of beneficiaries were eligible for Medicare originally due to disability. One percent of beneficiaries had end-stage renal disease (ESRD), and 2 percent resided in nursing homes during the year before their assignment to an HCH practice.

Table 8-3
Minnesota: Demographic and health status characteristics of Medicare FFS beneficiaries participating in the Minnesota HCH initiative from October 1, 2011, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	159,435
Demographic characteristics	
Age < 65 (%)	27
Age 65–75 (%)	36
Age 76–85 (%)	25
Age > 85 (%)	12
Mean age	69
White (%)	90
Urban place of residence (%)	74
Female (%)	57
Dually eligible beneficiaries (%)	23
Disabled (%)	32
ESRD (%)	1
Institutionalized (%)	2
Health status	
Mean HCC score groups	1.02
Low risk (< 0.48) (%)	26
Medium risk (0.48–1.25) (%)	51
High risk (> 1.25) (%)	23
Mean Charlson Comorbidity Index score	0.70
Low Charlson Comorbidity Index score (= 0) (%)	68
Medium Charlson Comorbidity Index score (≤ 1) (%)	16
High Charlson Comorbidity Index score (> 1) (%)	16

(continued)

Table 8-3 (continued)
Demographic and health status characteristics of Medicare FFS beneficiaries participating in the Minnesota HCH initiative from October 1, 2011, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%)	
Essential hypertension	24
Lipid metabolism disorders	15
Diabetes without complications	14
Cardiac dysrhythmias and conduction disorders	9
Coronary artery disease	8
Other respiratory disease	8
Acute and chronic renal disease	7
Anemia	7
Dizziness, syncope, and convulsions	6
Disorders of joint	6
Hypothyroidism	5
Diabetes with complications	4
Heart failure	4
Chest pain	4
Urinary tract infection	4
Renal failure	3
Malaise and fatigue (including chronic fatigue syndrome)	3
Valve disorders	2
Peripheral vascular disease	2
Cardiomyopathy	1
Strokes	1
Dementias	<1

NOTES:

- Percentages and means are weighted by the fraction of the year for which a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the OMB.

EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries' health status during the year before their assignment to an HCH practice. HCC scores for Medicare beneficiaries assigned to HCH practices were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to HCH practices had a mean HCC score of

1.02, meaning that they were predicted to be 2 percent more costly than an average Medicare FFS beneficiary. Beneficiaries' average score on the Charlson Comorbidity Index was 0.70.³ Just over two-thirds (68%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before their assignment to a participating HCH practice. The most common chronic conditions diagnosed were hypertension (24%), lipid metabolism disorders (15%), and diabetes without complications (14%). Fewer than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In **Table 8-4**, we report demographic and health status characteristics of Medicaid beneficiaries assigned to participating HCH practices during the evaluation period (October 1, 2011, through December 31, 2014). Compared with Medicare beneficiaries (**Table 8-3**), Medicaid beneficiaries were much less likely to be White. Forty-eight percent of the Medicaid beneficiaries assigned to HCH practices during the evaluation period were children, with a mean age of 6 years, and the remaining 52 percent of beneficiaries were adults, with a mean age of 36 years. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in the Medicare table above. Among Medicaid beneficiaries, 78 to 80 percent resided in an urban area. About 50 percent of the children were female, whereas almost two-thirds of adults were female (62%). Only 4 percent of children were eligible for Medicaid due to disability, compared with 10 percent of adults. Children had relatively few chronic conditions (more than half had no such conditions). In contrast, adults had significantly more (81% had at least one chronic condition). Both children and adults had a relatively low Chronic Illness and Disability Payment System (CDPS) score.⁴

³ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of 0 indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples' Charlson Comorbidity Index, the greater morbidity in the study sample.

⁴ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples' CDPS scores, the greater morbidity in the study sample.

Table 8-4
Minnesota: Demographic and health status characteristics of Medicaid beneficiaries
participating in the Minnesota HCH initiative from October 1, 2011, through
December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	328,625	356,479
Demographic characteristics		
Mean age	6	36
White (%)	50	59
Urban place of residence (%)	78	80
Female (%)	50	62
Medicaid eligibility due to disability (%)	4	10
Other Medicaid eligibility (%)	96	87
Institutionalized (%)	0	0.2
Health status		
Mean CDPS score groups	0.58	0.53
Low birth weight and serious perinatal problems (%)	0.6	0
Mean number of chronic conditions	0.8	2.5
0 chronic conditions (%)	52	19
1–2 chronic conditions (%)	40	40
3 or more chronic conditions (%)	8	41

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met HCH initiative eligibility criteria.
- Demographic and health status characteristics are calculated using Minnesota’s Medicaid Enrollment and Claims files, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.

CDPS = Chronic Illness and Disability Payment System; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

SOURCE: Minnesota Medicaid Enrollment and Claims Files.

Practice expectations. Minnesota developed comprehensive HCH certification and recertification standards that include the following requirements:

- HCHs must establish a system to screen patients and offer HCH services to all who have, or are at risk for, complex or chronic conditions.
- Participants must have 24-hour-a-day, 7-day-a-week access to practice staff with access to their medical records through an on-call provider or telephone triage system.
- HCHs must use a searchable electronic registry to support care coordination, track patient care, and manage populations.
- HCHs must use a team that includes the PCP and care coordinator to develop a care plan and make regular face-to-face patient contact. Care coordination includes tracking admissions, referrals, and test results; post-discharge planning; medication

reconciliation; referring patients to community-based resources; transition planning; and linking to external care plans. Patients must have the opportunity to engage fully in planning and shared decision making.

- HCHs must have an active quality team with patient participation and a quality plan, and they must be able to measure and track change.

Practices had to prove that they adopted all of the required HCH care processes by submitting documentation and participating in a site visit by state certifiers, although the state had the option of granting “variances” if a practice failed to meet a criterion but agreed to implement a corrective action plan and be monitored to ensure that it came into compliance. Minnesota’s certification process was comprehensive, including medical record reviews and patient interviews, and the certification team included both medical personnel and a consumer.

At the end of their first year of certification, HCHs were required to report on specific quality measures and track at least one quality indicator. By the end of the first recertification period, HCHs were required to meet state-established quality benchmarks on patient health, patient experience, and cost-effectiveness measures. At the practice’s second recertification, practices were expected to meet higher-quality benchmarks.

As part of the first recertification process, HCHs were required to demonstrate that patients are encouraged to take an active role in managing their care and have opportunities to participate in care planning and shared decision making; show evidence of procedures and workflows to identify and remedy gaps in care; and document processes and identify staff to conduct pre-visit planning, call patients to remind them about needed appointments, schedule follow-up appointments for patients with chronic conditions, and use guidelines to identify patients with gaps in services. Practices seeking recertification also were required to show evidence that a registry is actively used by the care team, and they had to demonstrate ongoing partnerships with at least one community resource (e.g., senior services, schools, and local public health, home health, assisted living, and behavioral health agencies). HCHs were required to specify their comprehensive care planning processes and to designate staff to attend mandatory HCH learning collaborative meetings. Quality improvement was also a key component of the recertification process. HCHs were required to submit an annual quality plan and quality report, and they were required to submit data on one quality measure for each of three categories (patient health, patient experience, and cost effectiveness).

During an HCH’s second recertification, quality benchmarking became an important component. HCHs were expected to meet specific targets—developed by a HCH technical workgroup—on both improvement benchmarks and absolute performance benchmarks, using unadjusted quality measure data collected statewide. Improvement benchmarks measured a practice’s gains or losses on quality measures over time, whereas the performance benchmark compared an HCH’s absolute performance to other HCHs. HCH practices performing 10 percentage points higher than the state average were considered high achievers on that measure, and HCH practices performing 10 percentage points below the state average were considered low achievers. Failure to meet a performance target did not automatically make a practice ineligible to recertify as an HCH, but might result in recertification with a “variance” requiring it to implement a corrective action plan.

Support to practices. As noted previously, unlike other MAPCP Demonstration states, practices participating in Minnesota’s HCH initiative were required to submit claims each month to receive HCH care coordination payments from Medicare FFS and Medicaid FFS. Minnesota also required patients to opt in to receive HCH services, which some practices found burdensome. Practices were able to bill for care coordination services on a monthly basis, even if the patient did not have a regular face-to-face visit in the office that month. The care coordination payment amounts were tiered, based on the patient’s number of chronic condition groups (e.g., cardiovascular, respiratory, endocrine). Payments increased if a severe and persistent mental illness was present or if English was not the patient’s native language. No care coordination payment was made for those without any major (as specified by the state) chronic conditions, unlike other MAPCP Demonstration states where a payment was made for all attributed beneficiaries without regard to health status. Private payers were permitted to pay HCH practices using other payment models, such as by increasing capitation rates to cover the cost of care coordination services.

By the end of the first year of the MAPCP Demonstration, 59 practices had submitted claims to Medicare for monthly care coordination payments (with one practice receiving a majority of these funds). In the second year of the demonstration, 99 practices submitted claims to Medicare (with one practice again receiving a sizeable share of these funds). In the third year of the demonstration, 213 practices submitted claims to Medicare (with the same practice again receiving a substantial share of these funds).⁵ By the end of Minnesota’s 3.25-year MAPCP Demonstration (December 31, 2014), 216 practices had ever submitted claims to Medicare.⁶ Despite the relatively large number of practices participating in the HCH initiative in Minnesota, these practices did not consistently submit claims to FFS Medicare and FFS Medicaid for all of their eligible patients, causing only \$2.4 million in fees to be paid to practices in Minnesota (**Table 8-5**), which is much lower than the \$60.9 million that the state had projected in its MAPCP Demonstration application. The average amount of Medicare payments received per practice during the demonstration period was \$9,714—but this average is pulled up by the one practice with the very large Medicare panel; the amount received by the *median* practice in Minnesota was much lower, at only \$944. We elaborate on the reasons why many HCH providers chose not to bill for available payments in **Section 8.2.3**. The specific supplemental payments available from FFS Medicare and FFS Medicaid to HCH practices are listed in **Table 8-6**.

⁵ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

⁶ The number of practices that had ever submitted claims to Medicare by the end of the demonstration does not match the number of practices reported in **Table 8-2** as of December 31, 2014, because three practices terminated their participation before the end of the demonstration.

Table 8-5
Minnesota: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Median Medicare payments per practice	Average Medicare payment per practice ¹	Total Medicare payments ¹
Year One	\$169	\$2,431	\$282,065
Year Two	\$614	\$4,312	\$745,990
Year Three	\$1,080	\$5,401	\$1,096,408
Year Four	\$244	\$1,625	\$313,631
Overall	\$944	\$9,714	\$2,438,095

NOTES:

- The Overall amounts include Years One, Two, and Three, plus one additional quarter ending December 31, 2014.
- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.

MAPCP = Multi-Payer Advanced Primary Care Practice.

SOURCE: ¹Medicare claims data.

Table 8-6
Minnesota: Medicare FFS and Medicaid FFS care coordination payment rates available
through the HCH Initiative

Tier	Patient complexity	Medicaid FFS PBPM	Medicare FFS PBPM
0	No major chronic condition groups	\$0.00	\$0.00
1	1–3 major chronic condition groups	\$10.14 ¹	\$10.14 ¹
2	4–6 major chronic condition groups	\$20.27 ¹	\$20.27 ¹
3	7–9 major chronic condition groups	\$40.54 ¹	\$30.00 ¹
4	10+ major chronic condition groups	\$60.81 ¹	\$45.00 ¹

NOTES:

- PBPM payment amounts do not reflect the 2 percent reduction in Medicare payments that began in April 2013 as a result of sequestration.

¹ PBPM payments are increased by 15 percent if the patient is diagnosed with serious and persistent mental illness or if the patient's primary language is not English. If both situations occur, payments are increased by 30 percent. Private plans must be consistent with Medicaid FFS, but they can be flexible in their payment approaches.

FFS = fee-for-service; HCH = Health Care Homes; PBPM = per beneficiary per month.

The state also offered some financial assistance to pay for infrastructure investments in the first year of the HCH initiative, in the form of \$5,000 mini-grants awarded to dozens of practices.

Minnesota supported practices in adopting the HCH model in a variety of non-financial ways. Regionally based nurse consultants, called planners, worked one-on-one with practices interested in adopting the HCH model to provide educational tools and resources, answer questions, and help determine where to start in practices' transformation efforts. HCH planners also participated in certification and recertification site visits and wrote reports documenting

what practices had done to meet HCH standards. Planners also connected less-advanced practices with more-advanced practices to facilitate peer-to-peer learning, and helped to expand practices' relationships with local public health, social service, and mental health organizations.

Minnesota also provided technical assistance to support HCHs through a variety of meetings and webinars. Learning Days were in-person meetings held semiannually, which practices were required to attend to maintain HCH certification (and at which practices regularly were asked to make presentations). Between these in-person meetings, Minnesota initially convened semiannual virtual half-day meetings, which HCH practices could attend via video conference calls, by telephone, or in person—although the state phased these out by the time of our second-year site visit because “people wanted the face-to-face.” The state also offered monthly webinars on a variety of clinical topics; a four-part webinar series introducing the HCH model (available in a prerecorded format and delivered live a few times per year); and recorded webinars explaining how to bill for monthly HCH payments. As the initiative evolved, topics for the technical assistance resources shifted to reflect the continued development and advancement of many HCHs. In 2014, technical assistance resources placed greater emphasis on implementing more advanced care processes and improving quality, rather than simply meeting HCH certification standards. Recognizing that new HCHs were continually joining the initiative, Minnesota also archived previous technical assistance resources on its Web site. The state's SIM Initiative Model Testing award also provided funds to support educational meetings and webinars for participating HCH practices.

Some HCH practices also participated in learning communities led by contracted organizations; these brought together four or five practices each over a 6-month period to learn about a clinical topic of interest to them. Topics included disease prevention and health improvement, as well as patient- and family-centered care for children.

The state developed a toolkit for care coordinators, released in August 2013, designed to help with managing the care of Medicare beneficiaries and older adults with complex conditions. In 2014, the state appointed a workgroup to revise and update the toolkit on the basis of feedback from HCH providers and care coordinators.

Minnesota also provided practices with quality measure data aimed at helping them identify clinical areas to target for improvement. Although all practices in the state had access to a Web site showing how they performed on the various quality measures required by state law, HCH practices also had access to a more granular level of detail—showing how each of their providers performed on each of these quality measures and how their practice compared with other HCH practices—in terms of both absolute performance and changes since the prior year. These benchmarking data, which were considered when a practice applied for HCH recertification for the second time, were meant to guide practice quality improvement efforts.

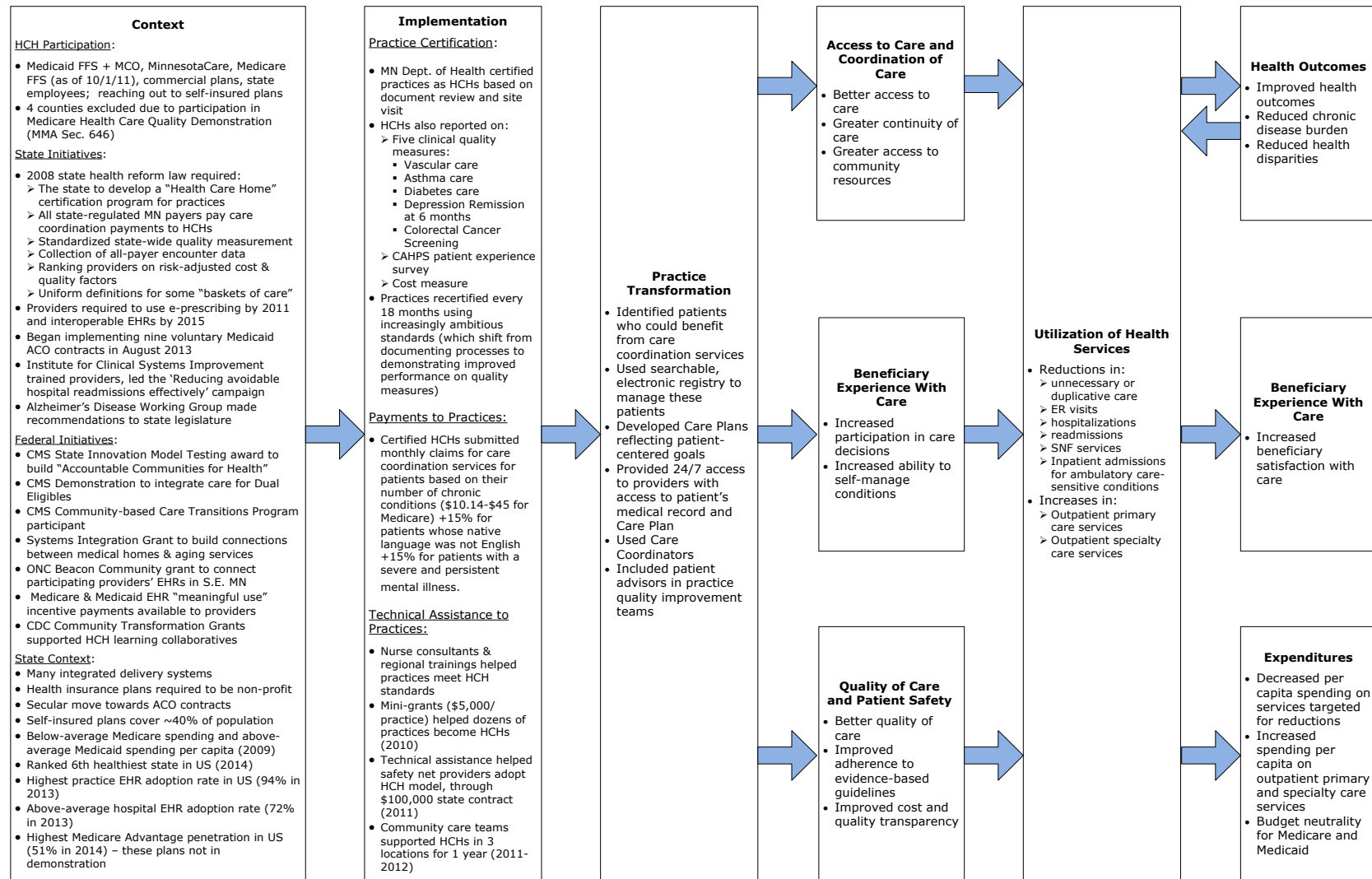
In addition, in August 2013, the state made publicly available the results of more than 230,000 patient experience surveys (collected using the Agency for Healthcare Research and Quality [AHRQ] CAHPS Clinician & Group [CAHPS CG] patient experience survey) from 651 practices, including certified HCH practices, on the Minnesota Community Measurement Web site for consumers (Minnesota HealthScores). In the summer of 2013, the state also began providing HCH practices with monthly online practice feedback reports derived from Medicaid

claims, which included information on patients' utilization of health care services, diagnostic information, and risks.

8.1.2 Logic Model

Figure 8-1 is a logic model of the HCH initiative meant to depict the hypothesized relationship between specific elements of the HCH initiative and changes in outcomes. The first column describes the context for the demonstration and the scope of the HCH initiative; it also identifies other state and federal initiatives and key features of the state that could have affected the demonstration, such as the secular move toward ACO-style arrangements in Minnesota and the fact that self-insured employer health plans covered approximately 40 percent of the state population (and did not participate in the HCH initiative). The demonstration context affected the state's implementation of the HCH initiative. These implementation activities were expected, in turn, to promote the transformation of practices to HCHs, reflected in new care processes and other activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher-quality care, as well as to have better experiences with care and to be more engaged in decisions about treatments and management of their conditions. These improvements, in turn, were expected to promote more efficient utilization of health care services. These changes in utilization were expected to produce further changes, including improved health outcomes, improved beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for the Medicare program and cost savings for other payers. Improved health outcomes, in turn, were expected to further reduce utilization.

Figure 8-1
Logic model for Minnesota HCHs



ACO = accountable care organization; CAHPS = Consumer Assessment of Healthcare Providers and Systems; CDC = Centers for Disease Control and Prevention; CMS = Centers for Medicare & Medicaid Services; EHR = electronic health record; ER = emergency room; FFS = fee-for-service; HCH = Health Care Home; MCO = managed care organization; MMA = Medicare Modernization Act; MN = Minnesota; ONC = Office of the National Coordinator for Health Information Technology; S.E. = Southeast; SNF = skilled nursing facility.

8.1.3 Implementation

This section uses primary data gathered from Minnesota site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 8.1*.

Major changes during the evaluation period. Relatively minimal changes were made to the HCH initiative over the course of the MAPCP Demonstration. The largest change was the number of participating practices, which steadily increased throughout the demonstration, in contrast to several other MAPCP Demonstration states that had a stable cohort of practices throughout this period. Other minor developments included the state’s development and release of a care coordination toolkit in August 2013, which it disseminated through webinars and workshops. The state also altered its approach to HCH learning collaboratives in 2013—shifting from regional meetings to larger, centrally located meetings with multiple concurrent workshops. This was intended to allow practices at similar stages of their adoption of the HCH model to more easily find and learn from each other, after struggling with how to provide “experiences that are meaningful for both ends of the spectrum, and everything in between,” as one state official put it. Then, in 2014, as more practices outside of the Twin Cities area became certified as HCHs, the state shifted back to regional learning sessions.

Major implementation issues during the evaluation period. Throughout the demonstration period, practices in Minnesota struggled with the requirement that they submit claims to receive monthly care coordination payments from Medicare FFS and Medicaid FFS and use a complexity-tiering tool to identify the payment amount for each patient. Generally, practices we interviewed felt that the state’s tiering tool was overly conservative, resulting in payments perceived as too low for relatively complex patients. At the same time, practices worried about being penalized for “over-tiering” a patient and therefore erred on the side of undercounting the number of conditions a patient had. Overall, practices felt that payments did not reflect the full cost of providing care management services to complex patients. Some practices told us they would have had to modify their billing system to be able to submit demonstration claims. These practices’ views were captured by the practice staff member who told us, “It costs more to bill than the revenue received.” At the end of 2013, HCH initiative leaders fielded a survey to HCHs about the payment methodology. This survey “identified many issues,” according to one state official, yet “there was no clear direction for us to go” to address these issues. The state ultimately did not make any changes to the HCH payment system.

External and contextual factors affecting implementation. The health care landscape in Minnesota was dynamic throughout the MAPCP Demonstration period, with several concurrent reform initiatives commanding resources and attention. Providers and private payers in the state continued to adopt ACO-style “total cost of care” payment arrangements, and many providers also entered into ACO contracts through the Medicare Shared Savings Program and the state’s Medicaid-based ACO initiative, the HCDS Demonstration. One state official cautioned that the move toward ACOs could be dampening interest in the HCH initiative: “Our state is zooming along so quickly related to ACOs, and there are clinics that, because of shared risk and gain, are nervous about taking care coordination payments up front. They want to see how they’ll do with quality and cost first.” By accepting monthly care coordination payments,

along with their other FFS payments, such practices would have had a harder time demonstrating reduced expenditures and qualifying for shared savings payments from payers.

8.1.4 Lessons Learned

Several lessons about the state’s implementation approach emerged from our 3 years of site visit interviews. First, state officials told us that they had underestimated the resources required to implement a federal demonstration. One official explained, “You spend a percentage of time getting the work done, and then another percentage of time explaining it.” The state could have benefitted from dedicated resources to fund implementation. A second lesson learned, according to one state employee, was that “you can’t underestimate the degree of community engagement that you’re going to need to do.” This person felt it therefore made sense to prioritize *which* programmatic decisions require stakeholder input and consensus and which could be made by state initiative leaders, to avoid slowing down decision making or creating unnecessary bureaucracy.

A final lesson learned was that a state like Minnesota, which has a culture of health system innovation, offers both opportunities and risks. Although Minnesota providers signed up for HCH certification in large numbers, some practices declined to participate in the MAPCP Demonstration—or became certified but then opted not to bill for demonstration payments—due to expectations of greater revenues under ACO-style “total cost of care” payment arrangements. The larger-than-expected number of practices choosing not to bill for demonstration payments not only resulted in resources not reaching practices but also made it difficult for payers to identify which patients had received HCH services and whether these services had a positive impact.

8.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the HCH initiative and patients’ awareness of these changes, drawing on data from our focus groups and our three site visits (**Section 8.2.1**). We then present practices’ experiences using technical assistance available as part of the demonstration (**Section 8.2.2**), and practice views on the payment model used in this demonstration (**Section 8.2.3**), drawing on data from our site visits. We then present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities shortly after the conclusion of the demonstration (**Section 8.2.4**). We synthesize the site visit and survey findings in **Section 8.2.5**.

8.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. According to our interviews, the most central and transformative change that practices adopted to become certified as an HCH was the hiring of care coordinators. Because care coordination was a relatively new role in many practices, there was much experimentation among the practices we interviewed, with practices having coordinators fulfill different roles and refining their job responsibilities over time. Although there was wide variation, care coordinators initially focused on developing individualized care plans (which included summaries of recent care received from other providers), using electronic searchable registries to identify patients overdue for a preventive service (e.g., mammograms), and tracking referrals to ensure practice records and care plans

were complete and up to date. In later years, practices had often refined care coordinator responsibilities to suit their patients' needs and the skill set of their available staff. For example, one practice split up care coordinator duties into two roles, with a medical assistant (MA) engaging in pre-visit planning by ensuring that all needed medical records had been obtained, and a registered nurse (RN) updating care plans and calling high-risk patients after hospital discharges to reconcile new and old medications and schedule follow-up appointments. In later years, care coordinators also put more emphasis on identifying and referring patients to community resources (e.g., Senior Linkage Line, a Minnesota Board on Aging service, which connects seniors with financial, housekeeping, legal, and meal delivery assistance). They also seemed to be engaging in more follow-up with patients who had been seen in the ER or admitted to the hospital, which was facilitated when practices and hospitals used the same brand of EHR or a hospital made a view-only Web portal available to practices. When they did not, practices we interviewed often struggled to obtain timely records from hospitals, and this issue did not seem to improve with time. Care coordinators also seemed to be driving a lot more of the patient care in many HCHs by our third-year site visit—acting more independently and consulting physicians only when necessary instead of waiting to be assigned tasks by physicians. Other major changes that practices made to participate in the HCH initiative included offering 24-hours-a-day, 7-days-a-week access to practice staff with access to patients' medical records (an HCH requirement for entering the demonstration, often fulfilled through a call center or triage nurses who answered after-hours calls on a rotating basis). In later years, practices seemed to devote more effort to adopting a team-based approach to delivering care (such as by instituting care planning meetings that brought together different practice staff members to develop a patient's care plan), and to providing patient education aimed at better self-management of chronic conditions (with which some practices had difficulty).

In the later years of the demonstration, we also heard some practice complaints about the state's use of quality measure data in the recertification process that had not been risk-adjusted and thus did not account for the added challenges of working with low-income, high-risk patients.

During our first-year site visit, many practices interviewed thought Minnesota's HCH certification process was overly burdensome—specifically, the requirement to provide supporting documentation and to recertify every year. In our second-year site visit, the state had responded to these concerns by lengthening the time period for obtaining recertification by 3 months, to 15 months. The practices we interviewed then had more of a mixed view of the recertification requirement. Some said they thought it was useful to get frequent feedback through the recertification process about which elements of the HCH model they had successfully adopted and which needed further refinement; others felt differently. One practice suggested that after a practice had been recertified once and operated as a HCH for a few years, it might make sense for the state to “put [recertification] off for a few years.” By our third-year site visit, the state had lengthened the time allotted to obtain recertification by an additional 3 months (to 18 months), yet practices still reported feeling that recertification was an unnecessary administrative burden. State officials were considering ways to reduce the burden, but they acknowledged that changes to the recertification requirements would require approval from the Minnesota legislature.

Practice staffing changes. Given that the addition of care coordination was cited as one of the biggest changes associated with the HCH initiative, it is not surprising that hiring new staff to perform these care coordination activities was also cited as a major change in practice structure during our first-year site visit. Care coordination required practices to identify or hire staff who could work with physicians and patients. Practices varied in terms of the type of training that their care coordinators had: Some were RNs, whereas others were licensed practical nurses, MAs, community health workers, or social workers. Regardless of their background, there was a general sense that care coordinators had to have good “people skills” to interact effectively with patients and physicians. They needed to be nurturing yet emotionally resilient enough to help patients during times of crisis, and skilled in connecting patients to community resources.

Within a given practice, there could sometimes be a mix of backgrounds among its care coordinator staff, with practices having different care coordinators fill different roles. Under one configuration, a nurse might manage more complex patients and staff with less clinical training might focus on less complex patients. In another, a nurse might deal with medical questions and a less-trained care coordinator might obtain medical records from patients’ other providers and monitor medication tolerance (and then bring reactions to medications to a clinician’s attention).

In our second-year site visit, we found that many practices had made refinements to their staffing model as they gained more experience with the HCH initiative—hiring care coordinators with different skill sets than those they had previously employed (including individuals who were nurturing, emotionally resilient enough to help patients during times of crisis, and skilled in connecting patients to community resources), or changing care coordinators’ job duties. Care coordinators most commonly focused on calling patients to remind them to schedule appointments for preventive services or to make sure medications were being taken. In more advanced practices, care coordinators also regularly met with patients—for example, to modify and titrate medications and engage patients in setting health goals.

By our third-year site visit, ensuring that all practice staff were “working at the top of their license” had become more of a focus. Third-year interviews also revealed some physician turnover at a small number of practices, in response to the perceived burden of adopting HCH standards, and some challenges associated with educating the remaining staff about the merits of the HCH model. Although practices agreed that culture change was a challenge, they believed that the HCH model was good for patients, and they were dedicated to making it work.

Health information technology. In 2007, the Minnesota legislature mandated that all hospitals and health care providers have an EHR by 2015.⁷ As a result, many practices had a functioning EHR before they joined the HCH initiative. Despite this widespread adoption of EHRs, practice staff often used Microsoft Excel spreadsheets as patient registries at the start of the demonstration. By our second-year site visit, state certification staff reported that practices were beginning to use their EHR’s registry feature and clinical decision support prompts. By the time of our third-year site visit, most practices had made considerable progress and were using built-in registry and quality measure calculation functions comfortably.

⁷ <http://www.health.state.mn.us/e-health/hitimp/>

In addition to using an EHR in their practice, providers sometimes also had Web-based access to their patients' medical records, which allowed them to meet the HCH certification requirement that they have access to patients' medical records when remotely responding to after-hours calls from patients. Practices often also gave patients access to their online records, through a Web portal where they could view some limited medical records such as test results. The MAPCP Demonstration provider survey we fielded shortly after the demonstration ended (described below) confirmed the high degree of comfort with EHRs that we observed in our third-year site visit, with 94 percent of the demonstration providers responding to our survey reporting a high level of EHR adoption. In our focus groups, we found that slightly less than half of participants reported using patient portals—for example, to view their medications, diagnoses, and lab results; make appointments; or communicate with a provider online. The participants using the “MyChart” patient portal with some regularity spoke very highly of it and recommended it to others, and several noted that they were able to get answers to clinical questions from their provider via e-mail. Other participants reported that they were “computer illiterate,” did not have a computer or access to the Internet, did not have time to look online, or did not trust the security of the system.

Exchanging electronic health information with other providers was an issue throughout the demonstration. Interviewees told us about different brands of EHRs (or even different versions of the same brand of EHR) that were not interoperable with one another, about health systems that refused to give unaffiliated practices access to their EHR (even if they used the same brand of EHR), and about the requirement that patients authorize each transmission of data between providers using Epic's CareEverywhere HIE platform—although CareEverywhere was viewed as improving the exchange of information and was widely used by Minnesota interviewees in 2014. Other practices typically obtained records by using a view-only Web-based version of other providers' EHRs or receiving documents via e-mail or fax. Interviewees' EHRs were often set up to automatically convert incoming faxes into unsearchable electronic files using Adobe's Portable Document Format (PDF).

Patient awareness of patient-centered medical home. After practices had spent nearly 3 years adopting the HCH model of care, we assessed the extent to which patients had become aware of this care delivery model. When we asked Medicare and Medicaid beneficiaries and their family caregivers about this in focus groups in the third year of the demonstration, we found that very few participants were familiar with the term “health care home” and even fewer were aware that they were enrolled and receiving certain services through an HCH program. Most who were enrolled had trouble defining the term.

After our focus group moderator explained the concept of a HCH, participants generally agreed that it sounded like “a good idea” and that their care would “possibly” improve under such a model. One participant explained that she thought the HCH model sounded beneficial because, “It just frees up the other doctors. Because my daughter doesn't go in—she uses it over the phone. So it frees up somebody else to have a spot to go see the doctor.” Some participants felt that they did not need what they perceived to be “extra services,” and that it would really only benefit patients with complex needs. Other participants thought that an HCH had the potential to complicate care unnecessarily because “to involve more people causes chaos.” A handful of patients were concerned that they had been enrolled in a program without giving

consent. Despite the concerns expressed by a minority of participants, most agreed that the HCH concept seemed promising, even if they were not aware that they were already enrolled in one.

Patient awareness of practice changes. Medicare and Medicaid beneficiaries and their family caregivers in our third-year focus groups noticed various changes in their practices over the course of the demonstration period and felt that their overall experiences had either stayed the same or improved in recent years.

In terms of practice staffing changes, several participants reported that they had witnessed increases in the number of staff at their PCP's office—more physicians, more mid-level providers, and more support staff. At least one participant felt that the addition of more doctors in her practice had reduced wait times, and several participants said that wait times for appointments were now shorter than they had been in the past. Some focus group participants mentioned that for same-day sick visits, they sometimes saw physician assistants (PAs) or nurse practitioners (NPs). One participant noted that her clinic's operating hours had been expanded to include some evenings and weekends.

Several participants noted that their PCP was paired with a nurse or another staff person who was available to answer questions between visits. Participants appreciated having a direct line to someone who could provide answers without having to make an appointment to see the doctor. Several participants also noted that a completely new type of staff person was now contacting them either before, during, or after an appointment to discuss nonmedical issues such as transportation needs and food assistance. Participants were not sure what this person's qualifications or role were, but some speculated that this person was a nurse, an intern, or a social worker. Generally, participants appreciated this extra attention. One participant noticed that her practice now contacted her to inform her when she was due for a certain service or medication refill; she felt that practice staff were now more proactive about providing services, compared with the past.

Finally, some participants felt that their primary care clinics were now keeping more comprehensive and more accurate medical records, and several commented that they were presented with a chance to review the records before or after an appointment, which they appreciated. Several participants were aware that their primary care practice had switched to an EHR from paper medical records; at least one participant noted that this transition was challenging at first but seemed to have “gotten much better” over time.

8.2.2 Technical Assistance

After expressing only limited enthusiasm during our first-year site visit, practices grew to have generally positive views of the mandatory, semiannual, in-person Learning Days meetings offered by the state HCH certification staff. These educational opportunities covered topics like patient-centered care, care coordination, screening for various conditions, and care transitions out of the hospital. Practices valued learning from other practices—about their different quality improvement projects, for example—and applauded the state for frequently seeking feedback from them on topics to cover.

Practices often felt that they learned the most from practices similar to them in terms of geographic setting, size of practice, and HCH maturity level. Although the state tried to

accommodate this preference by switching from offering smaller regional meetings to larger, more centrally located meetings with concurrent sessions for practices to choose among, practices expressed an interest in taking this a step further and explicitly splitting practices into cohorts to allow practices of similar HCH maturity levels to be grouped together to learn with and from each other. At our third-year site visit, state officials told us they planned to do just this, offering “advanced” and “new clinic” tracks at an upcoming Learning Day.

After hearing from first-year interviewees that more training on care coordination would be helpful, the state developed and disseminated a Care Coordination Toolkit in August 2013, although this was released too late for early adopters of the HCH model to benefit from.

Minnesota practices had mixed views on the care quality and service utilization information they received from various payers and the statewide quality measurement organization, Minnesota Community Measurement. Some practices posted these results on bulletin boards and discussed them at internal practice meetings, whereas others complained that the data and rankings from Minnesota Community Measurement were not risk-adjusted and thus were less meaningful to them. That said, most practices we interviewed engaged in some type of data analysis and focused quality improvement efforts on areas where the data indicated underperformance.

8.2.3 Payment Supports

Practices reported several major difficulties with Minnesota’s HCH payment system (described in “**Support to Practices**” in *Section 8.1.1*) throughout the demonstration period, which helps explain why so few practices chose to bill Medicare FFS and Medicaid FFS on a consistent and ongoing basis during our evaluation period.

First, the HCH payment system required practices to *assign each eligible patient to a complexity tier*, which presented some issues. For one, the state believed that practices were generally “under-tiering”—meaning that they were being overly conservative in their assessments of the number of chronic conditions their patients had and were receiving lower monthly HCH payments than they might have been entitled to. Providers also questioned whether the tiers adequately captured the complexity of a patient. They noted that a patient with a single, severe condition could require more effort to manage than a patient with several well-controlled conditions, yet the payment methodology would more highly reward treating the patient with multiple well-controlled conditions. Tiers also did not account for beneficiaries dually eligible for Medicare and Medicaid, whose number of chronic conditions may not reflect the true complexity of their care coordination needs.

A second major issue with Minnesota’s payment approach was that it required practices to submit a monthly claim to receive HCH payments from Medicare FFS and Medicaid FFS, which most practices’ billing systems were not set up to do in the absence of a face-to-face visit. One state official explained the decision of some practices not to bill for care coordination services: “The providers aren’t set up to bill for it, and it would be too little money” to be worth modifying their billing system to allow them to submit claims for HCH payments.

A third barrier to submitting claims for monthly HCH payments was the requirement that practices convince their patients to opt in to the HCH program before they could submit claims on their behalf, which practices found to be time-consuming and burdensome.

In addition, some commercial payers charged patients copayments for monthly HCH payments, which patients did not like having to pay in months when they did not have a face-to-face visit with their provider.

Providers' incentives to develop the appropriate billing systems needed to receive the HCH payments were reduced by the fact that many of their patients were not eligible for HCH payments, because two important payers (self-insured private employer health plans [ERISA plans] and Medicare Advantage plans) did not participate in the HCH initiative. Minnesota had the highest percentage of Medicare beneficiaries in Medicare Advantage plans in the country in 2014, at 51 percent.⁸

Given the payment issues described above, the HCH initiative benefitted from the fact that ACO-style contracts became popular among commercial payers and providers in the Twin Cities area, where many HCH practices were clustered. Such contracts allowed many providers to benefit financially from adopting the HCH model, even if they did not bill for monthly HCH payments. Practices in these contracts understood that payments received through the MAPCP Demonstration would have been counted as costs generated by their patients, impairing their ability to stay under spending targets and qualify for shared savings bonuses.

Several practices said that, although they were frustrated with the HCH initiative payment system, they were not interested in pursuing strategies to overcome the challenges because they believed payment methods were moving away from FFS and more toward global capitation arrangements.

Practices and private payers uniformly thought HCH payment rates were not generous enough. Even a practice receiving all HCH payments to which they were entitled from all available payers found that these revenues were insufficient to cover the cost of all of the care coordinators they had hired. Practices also said some upfront start-up money to implement the HCH model would have been helpful (although the state did provide modest \$5,000 mini-grants to dozens of practices early in the demonstration); at least one private payer also provided some start-up grants to qualifying practices.

Despite these payment issues, interviewees uniformly praised the HCH care delivery model, which many practices had adopted to help them win ACO-style contracts, to stay competitive and not lose patients, or because they felt it was the right thing to do. This did not mean that providers were happy with their financial situation. One particularly frustrated physician complained, "We're supplying all the manpower and all the money to save the system money, but we get nothing in return," and another said, "Not many places would sign up to lose as much money as we have!"

⁸ <http://kff.org/medicare/state-indicator/enrollees-as-a-of-total-medicare-population/>

Near the close of the demonstration, in late 2014, practices began to think about Medicare's new monthly Chronic Care Management (CCM) billing codes as a substitute for HCH payments, which they could begin using in 2015. Some practices that billed and received payment from Medicare for HCH services said that the CCM codes would be a reasonable substitute.

8.2.4 Practices' Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care that their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity; one representing a moderate level of adoption; and one representing a high level of adoption of the activity. Survey findings presented in **Table 8-7** and **Table 8-8** focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted. Given the low response rate in Minnesota, these survey results should be interpreted with caution.

The Overall Practice Transformation Index reported in **Table 8-7** is the average percentage of activities that providers reported having adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). Overall, Minnesota providers reported engaging in 70 percent of the PCMH activities in our survey at a high level, which was comparable to the overall eight-state MAPCP Demonstration average (72%). The share of care coordination activities that Minnesota providers reported engaging in at a high level was significantly lower (62%) than the eight-state average (68%). However, the share of other PCMH activities that Minnesota providers reported engaging in at a high level was statistically comparable to the eight-state average for the other five PCMH domains measured. Specifically, Minnesota providers reported engaging in the following activities at a high level: 74 percent of the access-to-care activities (compared with the eight-state average of 76%); 76 percent of the care management activities, defined as those activities that do not require interaction with other providers (compared with the eight-state average of 78%); 59 percent of the patient-engagement and self-management activities (compared with the eight-state average of 57%); 79 percent of quality improvement activities (compared with the eight-state average of 76%); and 94 percent of the health IT activities (compared with the eight-state average of 93%).

Table 8-7
Minnesota: Percentage of PCMH activities adopted at a high level:
Minnesota MAPCP Demonstration provider survey

	% in Minnesota (N = 188 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index <i>(Average % of activities adopted at a high level, out of 23 PCMH activities)</i>	70	72
Practice Transformation Index by domain <i>(Average % of activities adopted at a high level, within each survey domain)</i>		
Access to care	74	76
Care management (without involvement of other providers)	76	78
Care coordination (involving other health care providers)	62*	68
Patient engagement and self-management	59	57
Quality improvement	79	76
Health IT	94	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

Health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 8-8 indicates that the percentage of providers in Minnesota who reported high-level adoption of particular PCMH activities was comparable to the MAPCP Demonstration eight-state average for 13 of the 23 PCMH questions in our survey. Meanwhile, Minnesota providers performed better than the eight-state average for five other activities:

- Offering after-hours access to practice staff by phone and through evening or weekend office hours, and following up after ER visits (78% compared with 69%);
- Having referral protocols and agreements with other providers (59% compared with 50%);
- Incorporating patients' values and preferences into care planning (59% compared with 51%);
- Systematic quality improvement activities (e.g., using the plan-do-study-act approach) (87% compared with 81%); and
- Collecting and using patient feedback collected through a survey or focus group (85% compared with 79%).

Minnesota providers performed worse than the eight-state average for five other activities:

- Monitoring patients' care during hospital stays (65% compared with 74%);
- Regularly reviewing the medications of patients taking multiple medications (88% compared with 97%);
- Tracking and following up with patients after important referrals (63% compared with 75%);
- Transmitting referral information to specialists and hospitals (86% compared with 91%); and
- Following up with patients seen in the ER or hospital (74% compared with 80%).

These results are contextualized and discussed in greater detail in subsequent sections of this chapter.

Table 8-8
Minnesota: Percentage of respondents reporting a high level of adoption of specific PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Minnesota (N = 188 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to care		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	89	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	83	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings and weekends. The practice actively participates in coordinating ER care, and follows up with patients after visits to the ER.	78*	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	70	71

(continued)

Table 8-8 (continued)
Minnesota: Percentage of respondents reporting a high level of adoption of specific
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Minnesota (N = 188 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	65*	74
Care management (without involvement of other providers)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	65	59
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	82	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	88*	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	89	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	78	78
Tracking and follow-up with patients about test results... Is consistently done.	89	87
Care coordination (involving other health care providers)		
Tracking and follow-up with patients for important referrals... Is consistently done.	63*	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	59*	50
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	86*	91

(continued)

Table 8-8 (continued)
Minnesota: Percentage of respondents reporting a high level of adoption of specific
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Minnesota (N = 188 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	58	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	74*	80
Patient engagement and self-management		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	69	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	59*	51
Involving patients and caregivers in health care decision making... Is a priority and is systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and teach-back techniques.	73	67
Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	58	57
Quality improvement		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	87*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	85*	79

(continued)

Table 8-8 (continued)
Minnesota: Percentage of respondents reporting a high level of adoption of specific
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Minnesota (N = 188 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Health IT		
EHRs... Are used for basic functions, plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	94	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

8.2.5 Discussion of Practice Transformation

The most distinguishing feature of Minnesota's HCH initiative was perhaps its payment model. On paper, Minnesota's payment model may have seemed like it was the most generous in the demonstration, with practices eligible for payments of up to \$79.05 per month for Medicaid patients (and \$58.50 for Medicare patients) with 10 or more chronic conditions if they had a serious and persistent mental illness and did not speak English as their native language (see **Table 8-6**). However, Minnesota was the only state to offer no payments for patients who had zero chronic conditions. And in reality, the size and quantity of payments received by practices was much lower than expected. Practices sometimes underreported the number of chronic conditions their patients had out of a fear of being audited, and often did not bother to submit monthly claims for demonstration payments due to the cost involved in modifying billing systems to generate claims without face-to-face visits and the hassle of convincing patients to opt in to the demonstration. Practices also did not bother submitting claims when they were in ACO-style shared savings contracts with private payers, because such claims would have reduced their ability to stay within spending targets and lessened the likelihood of earning bonuses.

Somewhat surprisingly, these payment issues did not stop Minnesota practices from adopting the HCH model of care. Providers sometimes told us they were frustrated about losing money as a result of the HCH model but were willing to do so because they thought they would eventually recoup these funds through ACO-style contracts with private payers (and with Medicaid, which began an ACO effort part way through the MAPCP Demonstration). Providers often also felt the model was the "right" way to deliver care and would be needed to retain patients and stay competitive.

Minnesota also stood out from most other demonstration states through the use of its own state-specific standards, rather than the National Committee for Quality Assurance (NCQA) PCMH standards. Unlike NCQA, Minnesota required practices to prove that they met

100 percent of their standards, rather than only a subset, and the state conducted in-person site visits to confirm that standards were being met by 100 percent of participants, rather than only a small subset of practices. Practices' views of Minnesota's home-grown certification approach were mixed, with some feeling that the state's requirement that practices recertify annually was burdensome, and others viewing the feedback they received through recertification as helpful.

Although many aspects of the state's HCH initiative were specified in statute and therefore did not lend themselves to rapid modification, the state staff administering the program appeared to have tried to be as responsive as possible, by lengthening the recertification period from 12 to 18 months in response to complaints about burden, frequently asking practices for topics to cover during mandatory learning collaboratives, and splitting technical assistance offerings into "new clinic" and "advanced" tracks in response to practice feedback.

8.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 8.3.1*); impacts on actual utilization of services and clinical quality (*Section 8.3.2*); and a synthesis of these findings (*Section 8.3.3*).

8.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

HCH practices engaged in several activities with the potential to improve care quality, patient safety, and patient health outcomes. These included having care coordinators use EHR-based patient registries to identify high-risk patients with chronic conditions to contact for more regular follow-up appointments as well as low-risk patients due for recommended preventive services. Practices also frequently analyzed quality measure data provided by payers and Minnesota Community Measurement and data from their own registries to identify gaps in quality, either in terms of outlier patients needing closer care management or outlier quality measures indicating that a practice was underperforming in a particular clinical area. For example, one health system's HCH practices held multidisciplinary team care conferences at least twice a year to discuss patients identified from their registry as having a gap in their care, reviewed these patients' records as a group to identify the types of services used and any barriers to the receipt of optimal care, and then collaborated to create a plan of action. Practices also described staff meetings where quality measurement scores were discussed as a group and said that staff members now paid more attention to quality measures and had a greater appreciation for quantitative data. Some practices stated that, even before the HCH initiative, they engaged in certain activities to improve care (e.g., through care coordination and care plan development), but noted that the HCH initiative's attention to quality measurement provided the impetus to document these activities more systematically.

The provider survey fielded in early 2015 confirmed this focus on quality improvement activities, finding that a higher share of providers reported engaging in such activities in Minnesota than in the average MAPCP Demonstration state. Specifically, 87 percent of Minnesota providers reported using systematic quality improvement approaches to meet organizational goals, which was statistically significantly higher than the average for providers across the eight MAPCP Demonstration states (81%). In addition, a significantly higher

percentage of Minnesota providers (85%) reported using formal methods, such as patient surveys or focus groups, to collect patient feedback regularly and then incorporate this feedback into practice improvements, compared with the average across the eight MAPCP Demonstration states (79%). Our focus groups confirmed that at least some practices were asking patients to complete patient experience surveys, with about half of our focus group participants reporting being asked to provide feedback about a visit with their PCP, through a telephone or mailed survey. At least one participant thought that the request for feedback was a relatively new practice activity.

In our third-year site visit, we learned that some practices had begun developing treatment guidelines for specific clinical conditions and were integrating these into their EHRs. Providers were essential in the development of these care protocols, and they were optimistic that they would increase standardization of care across providers within a practice and across practices within a health system.

Early in the demonstration, practices often mentioned reconciling new medications that patients were prescribed during hospital admissions or ER visits with pre-existing prescriptions, but told us they had begun engaging in these activities before the HCH initiative began or were doing so as part of a separate statewide campaign aimed at reducing readmissions. Our patient experience survey confirmed this focus on medication reconciliation, with 90 percent of Medicare FFS respondents reporting that they spoke with someone from their provider's practice at each visit about all of the prescription medicines they were taking.

8.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

The MAPCP Demonstration was expected to improve quality-of-care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality-of-care and health outcome measures between the HCH initiative and one CG: non-PCMH practices in Minnesota.

- **Table 8-9** reports on changes in six process-of-care measures among Medicare beneficiaries with diabetes and on one process-of-care measure for patients with ischemic vascular disease (IVD).
- **Table 8-10** reports on changes in the same six diabetes process-of-care measures among adult Medicaid beneficiaries, plus measures assessing rates of breast cancer screening, cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving various recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the HCH initiative in the likelihood of receiving the service in Year One, Year Two, Year Three, or all 3 years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared

with the CG. HCH initiative beneficiaries are expected to have positive values for all indicators, except the “none” indicator in diabetes care.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to HCH practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. Meanwhile, the PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, and hypertension. The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 8-11** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If the HCH initiative was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 8.3.3**.

Table 8-9
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
HbA1c testing		
Year One (N = 19,098)	0.31	[-1.05, 1.67]
Year Two (N = 8,794)	0.70	[-0.84, 2.25]
Year Three (N = 3,046)	-1.77*	[-3.35, -0.18]
Overall (N = 19,979)	0.22	[-1.08, 1.51]

(continued)

Table 8-9 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Retinal eye examination		
Year One (N = 19,098)	4.43*	[1.72, 7.14]
Year Two (N = 8,794)	2.42*	[0.03, 4.81]
Year Three (N = 3,046)	-0.25	[-4.13, 3.64]
Overall (N = 19,979)	3.40*	[1.08, 5.72]
LDL-C screening		
Year One (N = 19,098)	-0.12	[-1.91, 1.68]
Year Two (N = 8,794)	0.79	[-1.21, 2.80]
Year Three (N = 3,046)	-2.18	[-5.24, 0.87]
Overall (N = 19,979)	-0.06	[-1.63, 1.51]
Medical attention for nephropathy		
Year One (N = 19,098)	1.50	[-2.14, 5.15]
Year Two (N = 8,794)	1.37	[-2.05, 4.79]
Year Three (N = 3,046)	-2.02	[-6.35, 2.31]
Overall (N = 19,979)	1.12	[-1.99, 4.23]
Received all 4 diabetes tests		
Year One (N = 19,098)	4.05	[-1.91, 10.00]
Year Two (N = 8,794)	2.13	[-2.07, 6.32]
Year Three (N = 3,046)	-0.46	[-4.85, 3.92]
Overall (N = 19,979)	3.06	[-1.67, 7.79]
Received none of the 4 diabetes tests		
Year One (N = 19,098)	0.45*	[0.08, 0.82]
Year Two (N = 8,794)	-0.35	[-1.09, 0.39]
Year Three (N = 3,046)	1.28*	[0.78, 1.78]
Overall (N = 19,979)	0.30	[-0.07, 0.68]
Total lipid panel		
Year One (N = 25,980)	-1.89	[-3.87, 0.09]
Year Two (N = 11,966)	-2.65	[-5.92, 0.62]
Year Three (N = 4,022)	-1.90	[-5.98, 2.18]
Overall (N = 29,108)	-2.11*	[-3.72, -0.50]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; HCH = Health Care Homes; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found some evidence that the Minnesota HCH impacted the likelihood of some process-of-care measures, although there were inconsistencies in the direction of these impacts. Specifically, *Table 8-9* shows the following:

- The *overall* likelihood of receiving a **retinal eye examination** increased among Medicare HCH beneficiaries compared with Medicare beneficiaries assigned to non-PCMH comparison practices.
- The *overall* likelihood of receiving a **total lipid panel** decreased among Medicare HCH beneficiaries compared with Medicare beneficiaries assigned to non-PCMH comparison practices.
- Compared with Medicare beneficiaries assigned to non-PCMH comparison practices, the *overall* likelihood of **receiving none of the four diabetes tests** remained unchanged among Medicare HCH beneficiaries, although statistically significant differences were observed in some years.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, low-density lipoprotein cholesterol (LDL-C) screening, receipt of all four diabetes tests, or medical attention for nephropathy.

Table 8-10
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
HbA1c testing						
Year One	N/A	N/A	N/A	15,307	9.21*	[5.32, 13.10]
Year Two	N/A	N/A	N/A	11,513	16.30*	[5.02, 27.57]
Year Three	N/A	N/A	N/A	7,522	8.41*	[4.67, 12.15]
Overall	N/A	N/A	N/A	18,880	11.41*	[5.82, 17.00]
Retinal eye examination						
Year One	N/A	N/A	N/A	15,307	0.44	[-2.21, 3.09]
Year Two	N/A	N/A	N/A	11,513	-2.61	[-9.19, 3.98]
Year Three	N/A	N/A	N/A	7,522	1.46	[-3.79, 6.71]
Overall	N/A	N/A	N/A	18,880	-0.36	[-4.58, 3.87]
LDL-C screening						
Year One	N/A	N/A	N/A	15,307	15.98*	[11.71, 20.25]
Year Two	N/A	N/A	N/A	11,513	13.24*	[7.21, 19.26]
Year Three	N/A	N/A	N/A	7,522	20.72*	[13.97, 27.46]
Overall	N/A	N/A	N/A	18,880	16.10*	[11.24, 20.95]

(continued)

Table 8-10 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Medical attention for nephropathy						
Year One	N/A	N/A	N/A	15,307	12.31*	[8.15, 16.48]
Year Two	N/A	N/A	N/A	11,513	16.05*	[9.14, 22.97]
Year Three	N/A	N/A	N/A	7,522	20.03*	[12.71, 27.35]
Overall	N/A	N/A	N/A	18,880	15.26*	[9.99, 20.53]
Received all 4 diabetes tests						
Year One	N/A	N/A	N/A	15,307	2.18*	[0.57, 3.80]
Year Two	N/A	N/A	N/A	11,513	1.50	[-1.36, 4.36]
Year Three	N/A	N/A	N/A	7,522	3.79*	[1.64, 5.93]
Overall	N/A	N/A	N/A	18,880	2.31*	[0.35, 4.26]
Received none of the 4 diabetes tests						
Year One	N/A	N/A	N/A	15,307	-5.31*	[-7.72, -2.90]
Year Two	N/A	N/A	N/A	11,513	-5.68*	[-9.40, -1.97]
Year Three	N/A	N/A	N/A	7,522	-6.06*	[-9.10, -3.01]
Overall	N/A	N/A	N/A	18,880	-5.60*	[-8.07, -3.13]

(continued)

Table 8-10 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Breast cancer screening						
Year One	N/A	N/A	N/A	40,015	5.10*	[2.83, 7.38]
Year Two	N/A	N/A	N/A	29,173	6.71*	[4.08, 9.34]
Year Three	N/A	N/A	N/A	19,235	7.41*	[4.89, 9.93]
Overall	N/A	N/A	N/A	46,013	6.14*	[4.08, 8.19]
Cervical cancer screening						
Year One	N/A	N/A	N/A	102,686	1.23	[−0.10, 2.56]
Year Two	N/A	N/A	N/A	71,597	0.50	[−1.07, 2.08]
Year Three	N/A	N/A	N/A	46,349	−0.66	[−2.25, 0.94]
Overall	N/A	N/A	N/A	118,005	0.60	[−0.75, 1.95]
Antidepressant medication management: 12 weeks						
Year One	N/A	N/A	N/A	21,754	1.89	[−1.15, 4.93]
Year Two	N/A	N/A	N/A	13,672	5.06*	[1.29, 8.83]
Year Three	N/A	N/A	N/A	7,498	3.64	[0.00, 7.28]
Overall	N/A	N/A	N/A	32,115	3.21*	[0.77, 5.65]

(continued)

Table 8-10 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Antidepressant medication management: 6 months						
Year One	N/A	N/A	N/A	21,754	3.29*	[0.31, 6.26]
Year Two	N/A	N/A	N/A	13,672	4.53*	[0.69, 8.36]
Year Three	N/A	N/A	N/A	7,498	6.98*	[3.12, 10.84]
Overall	N/A	N/A	N/A	32,115	4.33*	[1.65, 7.00]
Appropriate use of asthma medications						
Year One	8,634	-1.92	[-5.77, 1.93]	10,569	4.11*	[1.61, 6.61]
Year Two	6,985	-3.66	[-8.07, 0.75]	8,034	1.91	[-2.69, 6.51]
Year Three	5,141	-0.66	[-6.82, 5.49]	4,883	4.55*	[0.30, 8.79]
Overall	13,461	-2.19	[-6.42, 2.04]	15,420	3.45*	[0.69, 6.21]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; HCH = Health Care Homes; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found ample evidence that Minnesota HCH impacted process-of-care measures. Specifically, *Table 8-10* shows the following:

- The *overall* likelihood of **HbA1c testing, LDL-C screening, medical attention for nephropathy, or receiving all four diabetes tests** increased among adult Medicaid HCH beneficiaries compared with adult Medicaid beneficiaries assigned to non-PCMH comparison practices.
- The *overall* likelihood of **breast cancer screening, the appropriate use of antidepressant medication management, and the appropriate use of asthma medications** increased among adult Medicaid HCH beneficiaries compared with adult Medicaid beneficiaries assigned to non-PCMH comparison practices.
- The *overall* likelihood of **receiving none of the four diabetes tests** decreased among adult Medicaid HCH beneficiaries compared with adult Medicaid beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* changes were observed for the measures of retinal eye examinations or cervical cancer screening. We also found no evidence of an impact on the appropriate use of asthma medications among Medicaid children.

Table 8-11
Minnesota: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Avoidable catastrophic events ¹		
Year One (N = 63,378)	0.55	[-0.36, 1.46]
Year Two (N = 96,515)	0.06	[-1.05, 1.17]
Year Three (N = 132,963)	0.21	[-0.94, 1.35]
Overall (N = 159,435)	0.23	[-0.66, 1.11]
PQI admissions—overall ²		
Year One (N = 63,378)	-0.38	[-1.40, 0.64]
Year Two (N = 96,515)	-0.04	[-1.03, 0.94]
Year Three (N = 132,963)	0.74	[-0.21, 1.69]
Overall (N = 159,435)	0.27	[-0.56, 1.11]
PQI admissions—acute ³		
Year One (N = 63,378)	-0.04	[-0.59, 0.52]
Year Two (N = 96,515)	-0.07	[-0.55, 0.41]
Year Three (N = 132,963)	0.22	[-0.41, 0.84]
Overall (N = 159,435)	0.08	[-0.40, 0.55]
PQI admissions—chronic ⁴		
Year One (N = 63,378)	-0.28	[-1.00, 0.43]
Year Two (N = 96,515)	0.02	[-0.73, 0.76]
Year Three (N = 132,963)	0.59	[-0.01, 1.19]
Overall (N = 159,435)	0.24	[-0.32, 0.80]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by the total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare HCH beneficiaries, there were no statistically significant overall differences observed in the rates of avoidable catastrophic events or PQI inpatient admissions (overall, acute, or chronic).

8.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

HCH practices engaged in quality improvement activities intended to improve care quality, patient safety, and patient health outcomes. These efforts appear to have paid off for Medicaid beneficiaries, but not for Medicare beneficiaries. Among Medicaid beneficiaries, those adults cared for by demonstration practices were more likely to have HbA1c tests, LDL-C screenings, medical attention for nephropathy, and all four of the recommended diabetes tests, compared with adults cared for by non-PCMH comparison practices. They were also more likely to be screened for breast cancer, use more appropriate asthma medication, and receive antidepressant medication management. Meanwhile, FFS Medicare beneficiaries receiving care from a demonstration practice were only more likely to receive retinal eye exams and were actually less likely to receive total lipid panels, compared with patients in non-PCMH comparison practices. However, it should be noted that the favorable finding of increased retinal eye exams diminished over time. They were no more likely to receive various other recommended services and were no less likely to experience a catastrophic event or an avoidable PQI admission, compared with non-PCMH comparison practices.

Our finding that the MAPCP Demonstration had a more positive impact on care quality for Medicaid patients than Medicare patients may be driven by differences between demonstration and comparison practices in their baseline quality measure performance for these two sets of patients (data not shown). Looking at Medicare beneficiaries, our comparison practices had higher rates of avoidable catastrophic events and preventable hospital admissions, and lower quality measure performance than MAPCP Demonstration practices before the demonstration began. As a result, comparison practices had more room to improve care, and MAPCP Demonstration practices had a harder task ahead of them because they were already superior performers. The reverse appears to have been true of Medicaid beneficiaries: MAPCP Demonstration practices did not perform as well as comparison practices on various quality and utilization metrics at baseline, and thus could have had an easier time improving over the course of the demonstration. We offer some additional possible explanations of why Medicaid beneficiaries had better results than Medicare beneficiaries on various outcomes in *Section 8.8*.

8.4 Access to Care and Coordination of Care

This section describes the changes practices made that were aimed at improving access to care and the coordination of care (*Section 8.4.1*), impacts on access to care and coordination of care (*Section 8.4.2*), and a synthesis of these findings (*Section 8.4.3*).

8.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

Access to care was a major focus in Minnesota, particularly through the requirement that practices offer access to a practice staff member who could see a patient's medical records and care plan 24 hours a day, 7 days a week. More than three-quarters (78%) of Minnesota providers

reported offering high-level after-hours access to care—by phone for urgent care, through in-person appointments available at least some nights and weekends for non-urgent care, and by coordinating and following up with patients after visits to the ER. This was higher than the MAPCP Demonstration average of 69 percent.

Practices used a variety of approaches to meet the 24-hour-a-day, 7-day-a-week access requirement and gain initial certification, most commonly by rotating on-call responsibilities among providers or nurse care coordinators. Other practices satisfied this requirement by using a secure online-messaging system that allowed patients' family caregivers to communicate directly with clinic staff or through a local centralized call center. Rural practices had difficulty complying with the 24-hour-a-day, 7-day-a-week standard because they often did not have a large number of providers to share on-call duties, and practices sometimes recruited providers with the promise that they would not have to serve on-call after hours. The state frequently gave practices a 1-year variance for this ambitious standard. By our second-year site visit interviews, all practices interviewed had fulfilled the 24-hour-a-day, 7-day-a-week access requirement successfully, even in rural areas, and several had turned to launching educational campaigns to inform patients of after-hours options for reaching the practice. In addition, several practices described efforts to increase access to same-day appointments, noting improvements in this area. All practices expressed confidence that their patients had very good access to care and that this access had improved over the past few years. Several practices also reported that care coordinators were effective in preventing unnecessary practice visits, thereby freeing up physician appointment slots and increasing access for patients needing an in-person visit. By our third-year site visit, every practice interviewed talked at length about its continued efforts to improve access to care, noting that patients were beginning to be more aware of the availability of 24-hour-a-day, 7-day-a-week access to the practice, thanks to practices' educational campaigns.

Patient perspectives on access to care were mixed. Some patients in our focus groups were successful in getting same-day appointments, but others mentioned needing to go to urgent-care clinics because they could not get an appointment soon enough. They also described instances when they chose to go to the ER—most frequently for a recognized emergency (e.g., experiencing symptoms of a heart attack) or for an urgent issue occurring at night or on the weekend. Several participants said their provider had urged them to call the office first to determine whether they should go to the ER. Some participants reported doing this, whereas others reported going straight to the ER because they felt they were already equipped to judge whether the ER, an urgent care clinic, or their primary care practice was the appropriate venue for a particular medical issue. These findings may reflect a lack of awareness among the average Medicare patient of the changes HCH practices made to begin offering 24x7 access to care.

For non-urgent care, most focus group participants found it straightforward to set up an appointment with their provider: Some reported setting up their next appointment before leaving the office, whereas others said they received mailed appointment reminders, especially for preventive services, and appreciated not having to keep track of when certain types of appointments should be set up. Generally, participants were pleased with how soon the next available non-urgent appointment usually was (ranging from a few weeks to a few months).

Only a handful of focus group participants mentioned experiencing long wait times once they arrived at a practice; most respondents characterized wait times as generally reasonable. One participant said that she had noticed that her provider's office had been running more "on schedule" within the past few years; she attributed this improvement to an increase in providers. Several others agreed that wait times had decreased.

Beneficiary survey results, reported below, were consistent with focus group comments. Minnesota HCH practices earned a score of 75 out of 100 on a multiquestion weighted composite scale that measures how easily patients can access their primary care practices (see **Figure 8-2** later in this chapter). This score was perhaps lower than one might have expected, given the state's 24-hour-a-day, 7-day-a-week access-to-care requirement. This composite reflects the following:

- 95 percent of survey respondents were usually or always able to make an appointment for a checkup or routine care as soon as they needed;
- 92 percent of respondents were usually or always able to get an appointment for care that they needed right away;
- 89 percent felt that they usually or always got answers to medical questions about which they called their practice during office hours;
- 83 percent said that their appointment usually or always began within 15 minutes of its scheduled start time; and
- 64 percent responded that they usually or always got answers to medical questions about which they called their practice after office hours.

Additional related survey questions revealed the following:

- 76 percent said their primary care practice gave them information about what to do if they needed care during evenings, weekends, or holidays;
- 57 percent said they were usually or always able to get the care they needed from their primary care practice during evenings, weekends, or holidays; and
- 48 percent of Medicare beneficiaries said they were able to obtain a same-day appointment from their primary care practice when they needed care right away.

Minnesota providers reported engaging in most of the other access-related activities in the provider survey at rates similar to the MAPCP Demonstration state average. However, only 65 percent of Minnesota providers reported offering a high level of patient-clinician continuity (providing patients a designated clinician and care team and monitoring patients' care during hospital and post-acute facility stays), compared with an average of 74 percent of providers across all MAPCP Demonstration states. This may reflect the slightly higher reliance on

hospitalists in Minnesota, compared with most other MAPCP Demonstration states.⁹ Patients whose providers did visit them in the hospital were appreciative: One from our focus groups commented that, “When I was in intensive care for dehydration, my doctor was in intensive care within 3 hours. I thought, ‘Wow, that’s pretty nice’.”

In addition to improving access to care, care coordination was also a key requirement of the HCH certification standards. Practices had to meet this requirement either through newly hired staff or existing staff with dedicated time for working on such duties. To identify which patients to offer these care coordination services to, practices were asked to devise practice-specific, payer-blind criteria; as a result, the patients that HCH practices targeted with enhanced care coordination services varied. For example, some practices we interviewed targeted all patients with particular chronic conditions, whereas one focused on patients with chronic conditions who had been recently discharged from the hospital. Another looked for patients who also had socioeconomic characteristics that increased the complexity of their treatment. The share of patients in a practice who were offered care coordination services was often small—approximately 2 to 3 percent of the practice’s total patient panel, based on our interviews.

There was substantial overlap in the tasks that care coordinators performed across sites, although each practice seemed to have its coordinators conduct a slightly different set of activities. Care coordinators’ specific functions were typically tailored to each patient’s needs, but often included:

- serving as the main point of contact for patients when they had questions (e.g., tracking down answers to questions about medications);
- pre-visit planning, making sure patients’ charts were up to date, and developing and updating patient care plans and patient-centered health goals;
- making sure patients got to specialist appointments or other referrals, and then obtaining medical records from these appointments;
- scheduling follow-up visits for patients at appropriate intervals and coordinating appointments so that patients could be seen for multiple problems in a single visit; and
- referring patients to social services in the community (e.g., getting patients signed up for Meals on Wheels, giving them information on assisted living housing, urging patients to take advantage of available mental health resources in the community).

⁹ Author calculations of number of hospitalists per capita in MAPCP Demonstration states use U.S. Census Bureau estimates of states’ populations combined with the numbers of hospitalists per state, reported in American Society of Anesthesiologists, “Prevalence of Hospitalists in U.S. Community Hospitals: Data from the American Hospital Association, 2012–2013.” Available at: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKewjt6NqIps_RAhVDJC_YKHQA9C9MQFggaMAA&url=https%3A%2F%2Fwww.asahq.org%2F~%2Fmedia%2Flegacy%2Ffor%2520members%2Fhpr%2Fhospitalistpaperaha2015.pdf%3Ffla%3Den&usg=AFQjCNHATgduDTge8TZ_eqG9bCHsuiERiQ&sig2=4t82Lx8YZZT_rgJnXLfT7Q&bvm=bv.144224172.d.eWE.

Practices often told us that care coordinators were using electronic registries to coordinate patient care, such as by checking their registry to see which patients needed services, when they needed them, and whether they actually received them. Respondents told us that care coordinators were also responsible for “tying up a lot of loose ends.”

There was variation in some aspects of the care coordination services that HCH practices offered. In addition to the variation in the clinical backgrounds of practice care coordinators noted earlier, we observed variation in how they functioned along several dimensions:

- *Work site.* According to a state staff member, care coordinators in the Minneapolis–St. Paul area and in larger health care systems tended to work out of practice sites, whereas in other areas care coordinators worked in locally staffed but centralized call centers serving multiple practice sites.
- *Patient panel size.* Care coordinators managed different numbers of patients, ranging from 65 to 160 patients per care coordinator.
- *Registries.* Information in the registries used by care coordinators to manage their patients with chronic conditions often varied across practices.
- *Activities.* In addition to the common care coordination activities mentioned above, some less frequently mentioned duties included working on advance directives, submitting prior authorizations, ordering medical equipment, and managing care transitions out of the hospital. We sometimes heard that care coordinators met in-person with patients to review their conditions (either right after meeting with a physician or in separately scheduled appointments). During these encounters, care coordinators collaboratively developed patient-centered health goals, worked with patients to figure out how to meet those goals, and sometimes engaged in motivational interviewing.

By the time of our later site visit interviews, practices were focused on refining their use of care coordinators and increasing the focus on developing care plans.

With a few exceptions, practices engaged in care coordination activities comparable to the eight-state MAPCP Demonstration average.

A higher share of Minnesota providers reported having high-level relationships with commonly referred-to practices, meaning that they had established formalized agreements and protocols with these other providers (59% compared with an average of 50% in the eight MAPCP Demonstration states). This may be related to the fact that a large share of demonstration practices in Minnesota were owned by larger health care systems.

A lower share of Minnesota providers reported that their practices engaged in the following activities at a high level:

- Reviewing the medications of patients taking multiple medications during care transitions, when patients receive new medications, and during regularly scheduled

visits (88% of Minnesota providers, compared with 97% of providers across the eight MAPCP Demonstration states);

- Consistently tracking and following up with patients for important referrals (63% of Minnesota providers, compared with 75% of providers across the eight MAPCP Demonstration states);
- Consistently transmitting patient referral information to specialists, hospitals, and other providers (86% of Minnesota providers, compared with 91% of providers across the eight MAPCP Demonstration states); and
- Routinely following up with patients seen in the ER or hospital, after notification from the ER or hospital (74% of Minnesota providers, compared with 80% of providers across the eight MAPCP Demonstration states).

These particular activities are all targeted at a practice's general patient population, which was not the focus of Minnesota's HCH standards. Rather, the state's PCMH model explicitly incentivizes prioritizing patients with multiple chronic conditions for care management services through its complexity-tiering tool and its lack of payment for patients with no chronic conditions. Perhaps not surprisingly, then, HCHs engaged in care coordination tasks applicable to their sickest subset of patients at comparable rates to other demonstration states; these tasks included actively coordinating the care management of complex patients, developing care plans for patients with chronic conditions, and using registries to engage in pre-visit planning and population health monitoring.

Minnesota providers also may have reported engaging in care coordination for their broader patient population at lower rates than other states for other reasons. Minnesota allowed practices to enter the MAPCP Demonstration at any time, so the survey results reflect the performance of practices at varying PCMH maturity levels, including practices only recently certified as HCHs that may not have fully mastered all aspects of the model. In addition, some practices that initially met the state's HCH certification requirements and were operating as an HCH may have scaled back their HCH activities when they encountered difficulty obtaining demonstration payments.

Virtually all practices were emphatic about the positive impact of care coordinators. Practices reported that care coordinators were effective in connecting patients with specialty care, following up after appointments outside the practice, making reminder calls, and generally being available when patients had questions or concerns.

Meanwhile, patients in our focus groups were usually unaware of their care coordinator or had declined this service or, conversely, reported having multiple care coordinators. Those who had relationships with care coordinators described the services provided by these individuals as including coordination and communication with nonmedical social services organizations and specialists, communication with the provider, and checking on medical and nonmedical issues (e.g., transportation, food). Attitudes toward care coordinators ranged from negative to ambivalent to appreciative. Some participants reported that their care coordinators changed suddenly and without notice, which they disliked. In many cases, participants were not

clear about who was providing the care coordinator—the clinic, the state’s Medicaid agency, Medicare, or some other entity. Several participants reported that they had had a care coordinator for nearly a decade, indicating that the care coordinator was not provided through the HCH initiative. Generally, it seemed as though several different programs provided care management in Minnesota, which is consistent with remarks made by providers in interviews.

With regard to coordination with specialists, findings from our CAHPS PCMH Medicare beneficiary survey were quite positive, with 90 percent of Medicare FFS respondents reporting that their provider usually or always seemed up to date on the care they had received from specialists. Focus group participants were also pleased with the level of coordination observed between their PCPs and specialists. Many participants said their providers were good at recommending specialists, scheduling appointments on their behalf, and following up after the appointment. Despite the mostly positive anecdotes about PCPs providing referrals to specialists, some reported specialists failing to share records with primary care practices, especially if the specialist was in a different health care system than their PCP.

With regard to coordination with hospitals, focus group participants who had visited the hospital within the past year believed that records were being transferred between their provider and the hospital. In some cases, participants were aware of an explicit relationship between their primary care practice and a local hospital, and they described the communication between their provider and their hospital as seamless: “All they’ve got to do is press a button, and your whole life will flash before whoever’s behind a desk. It doesn’t matter where you go.” One participant said he had to sign a release before his records were shared; this was consistent with remarks made by providers in interviews. Other participants reported a total lack of communication between some providers. One mentioned that two local hospitals used different EHRs, so his practice was unable to communicate with one of them. Another participant who was a caregiver for her father-in-law said, “If [he] sees a doctor [who is in one network] and I have to take him to an ER at a hospital that isn’t in that network, then there’s a big black hole... it’s terrible.”

8.4.2 Impacts on Access to Care and Coordination of Care

This section reports covariate-adjusted differences in selected Medicare and Medicaid access-to-care and care-coordination measures between the HCH initiative and one CG: non-PCMH practices.

- **Table 8-12** reports on changes in seven access-to-care and care-coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care Index (COC).
- **Table 8-13** reports on changes in five access-to-care and care-coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

The HCH initiative beneficiaries were expected to increase their utilization of primary care services and, unlike the other MAPCP Demonstration states, were also expected to increase their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. (Minnesota assumed the use of specialty care would increase based on some prior studies of HCH-like interventions that they cited in their initial demonstration application to CMS.¹⁰) We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge (which was expected to increase) and the rate of unplanned readmissions within 30 days after discharge (which was expected to decrease). For Medicare, these measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from 0 to 1. HCH initiative beneficiaries were expected to have higher values on the COC. Due to limitations in the Medicaid claims data, the COC measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care

¹⁰ Reid, R. J., Coleman, K., Johnson, E. A., Fishman, P. A., Hsu, C., Soman, M. P., Trescott, C. E., Erikson, M., & Larson, E. B. (2010). The Group Health medical home at year two: Cost savings, higher patient satisfaction, and less burnout for providers. *Health Affairs*, 29(5), 835–843. Leff, B., Reider, L., Frick, K., Scharfstein, D. O., Boyd, C. M., Frey, K., Karm, L., & Boulton, C. (2009). *Guided care and the cost of complex healthcare: A preliminary report. American Journal of Managed Care*, 15(8), 555–559.

visits and high continuity of care. For simplicity and ease of interpretation, we present results only for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with the HCH initiative in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in Year One, Year Two, Year Three, or all years. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with the HCH initiative in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in ***Section 8.4.3***.

Table 8-12
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)		
Year One (N = 63,378)	36.67	[-53.29, 126.63]
Year Two (N = 96,515)	13.23	[-76.49, 102.94]
Year Three (N = 132,963)	31.01	[-53.42, 115.43]
Overall (N = 159,435)	26.56	[-56.41, 109.54]
Medical specialist visits (per 1,000 beneficiary quarters)		
Year One (N = 63,378)	-12.83	[-35.72, 10.06]
Year Two (N = 96,515)	8.32	[-19.20, 35.85]
Year Three (N = 132,963)	0.62	[-29.59, 30.83]
Overall (N = 159,435)	0.38	[-25.74, 26.50]
Surgical specialist visits (per 1,000 beneficiary quarters)		
Year One (N = 63,378)	-8.79	[-18.31, 0.73]
Year Two (N = 96,515)	-5.97	[-15.87, 3.92]
Year Three (N = 132,963)	-5.94	[-16.38, 4.50]
Overall (N = 159,435)	-6.51	[-15.94, 2.92]
Primary care visits as percent of total visits (higher quintile = larger percentage)		
Year One (N = 98,695)		
1st quintile	-1.09	[-2.66, 0.49]
5th quintile	1.17	[-0.46, 2.80]
Year Two (N = 46,995)		
1st quintile	-1.59	[-3.47, 0.29]
5th quintile	1.55	[-0.21, 3.31]
Year Three (N = 21,276)		
1st quintile	0.80	[-1.36, 2.96]
5th quintile	-0.82	[-3.05, 1.42]
Overall (N = 107,181)		
1st quintile	-0.99	[-2.53, 0.55]
5th quintile	1.02	[-0.53, 2.57]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)	13.07	[-25.55, 51.69]
Year One (N = 6,969)		
Year Two (N = 10,452)	0.49	[-37.08, 38.06]
Year Three (N = 11,241)	-29.69	[-73.64, 14.26]
Overall (N = 24,039)	-8.03	[-38.51, 22.46]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 8,887)	-32.15*	[-54.76, -9.53]
Year Two (N = 13,533)	-14.95	[-36.52, 6.63]
Year Three (N = 15,799)	-14.79	[-39.78, 10.19]
Overall (N = 31,474)	-18.93	[-39.42, 1.56]

(continued)

Table 8-12 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care)		
Year One (N = 108,465)		
1st quintile	-0.19	[-1.59, 1.21]
5th Quintile	0.21	[-1.31, 1.72]
Year Two (N = 57,704)		
1st quintile	-1.64	[-3.33, 0.05]
5th quintile	1.67	[-0.07, 3.41]
Year Three (N = 26,591)		
1st quintile	-1.00	[-3.77, 1.78]
5th quintile	0.91	[-1.58, 3.40]
Overall (N = 115,686)		
1st quintile	-0.74	[-2.01, 0.54]
5th quintile	0.74	[-0.59, 2.08]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, no statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits, primary care visits as a percentage of total visits, follow-up visits within 14 days after discharge, 30-day unplanned readmissions, and continuity of care, as shown in **Table 8-12**.

Table 8-13
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among
Medicaid beneficiaries:
Thirteen quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Primary care visits						
Year One	199,049	3.15*	[1.21, 5.09]	156,319	7.17*	[5.11, 9.23]
Year Two	239,076	1.53	[-0.25, 3.31]	198,952	6.56*	[4.40, 8.71]
Year Three	283,499	-4.69*	[-6.65, -2.73]	261,198	-2.69*	[-4.48, -0.90]
Overall	356,479	-0.39	[-1.59, 0.81]	328,625	2.46*	[0.90, 4.02]
Medical specialist visits						
Year One	199,049	-0.08	[-0.43, 0.27]	156,319	0.52	[-0.27, 1.30]
Year Two	239,076	0.47*	[0.12, 0.82]	198,952	1.69*	[0.73, 2.65]
Year Three	283,499	0.46*	[0.03, 0.89]	261,198	1.78*	[0.63, 2.93]
Overall	356,479	0.37*	[0.01, 0.73]	328,625	1.55*	[0.56, 2.54]
Surgical specialist visits						
Year One	199,049	-0.02	[-0.15, 0.11]	156,319	0.15	[-0.18, 0.48]
Year Two	239,076	0.06	[-0.04, 0.16]	198,952	0.53*	[0.17, 0.89]
Year Three	283,499	-0.06	[-0.15, 0.03]	261,198	0.18	[-0.05, 0.41]
Overall	356,479	-0.01	[-0.08, 0.07]	328,625	0.26*	[0.01, 0.52]

(continued)

Table 8-13 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among
Medicaid beneficiaries:
Thirteen quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Primary care visits as percentage of total visits (% PC)						
Year One						
% PC < 70%	N/A	N/A	N/A	94,093	0.78	[-0.22, 1.79]
70% ≤ % PC < 100%		N/A	N/A		-0.45	[-1.02, 0.12]
% PC = 100%		N/A	N/A		-0.34	[-0.77, 0.10]
Year Two						
% PC < 70%	N/A	N/A	N/A	62,572	-0.08	[-1.20, 1.04]
70% ≤ % PC < 100%		N/A	N/A		0.05	[-0.60, 0.69]
% PC = 100%		N/A	N/A		0.03	[-0.44, 0.51]
Year Three						
% PC < 70%	N/A	N/A	N/A	38,400	-0.30	[-1.44, 0.83]
70% ≤ % PC < 100%		N/A	N/A		0.18	[-0.48, 0.83]
% PC = 100%		N/A	N/A		0.13	[-0.35, 0.61]
Overall						
% PC < 70%	N/A	N/A	N/A	125,378	0.29	[-0.51, 1.10]
70% ≤ % PC < 100%		N/A	N/A		-0.17	[-0.63, 0.30]
% PC = 100%		N/A	N/A		-0.13	[-0.47, 0.22]

(continued)

Table 8-13 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among
Medicaid beneficiaries:
Thirteen quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
30-day unplanned readmissions						
Year One	N/A	N/A	N/A	16,244	0.82	[-0.33, 1.96]
Year Two	N/A	N/A	N/A	24,630	0.10	[-0.95, 1.15]
Year Three	N/A	N/A	N/A	30,053	0.34	[-0.31, 0.98]
Overall	N/A	N/A	N/A	59,564	0.36	[-0.33, 1.05]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported due to the low frequency of readmissions among children.

CG = comparison group; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = Not Applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Turning to Medicaid beneficiaries, in *Table 8-13* we find that both adults and children had increased rates of primary care visits relative to the CG in the first year of the demonstration (which was a care pattern the state had expected to achieve), followed by decreased rates relative to the CG in the third year of the demonstration (which ran counter to the state's expectations). Both age groups saw slight increases in the rate of medical specialist visits compared with Medicaid beneficiaries served by comparison practices in the second and third years of the demonstration, and the surgical specialist visit rate increased for Medicaid adults in HCH practices relative to those in CG practices in the second year of the demonstration (which are both changes in care patterns that the state had expected to occur). *Table 8-13* also shows the following:

- Among Medicaid children, the *overall* likelihood of having **medical specialist visits** increased among HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults, the *overall* likelihood of having **primary care, medical specialist, and surgical specialist visits** increased among HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.

Among Medicaid children, no statistically significant *overall* impacts were observed for the measures of primary care and surgical specialist visits. Among Medicaid adults, no statistically significant *overall* impacts were observed for the measures of primary care visits as a share of total visits and 30-day unplanned readmissions.

8.4.3 Discussion of Access to Care and Coordination of Care

A relatively large share of Minnesota demonstration providers responding to our survey reported offering enhanced access to care through after-hours phone access for urgent matters, some evening or weekend office hours, and follow-up with patients after visits to the ER (specifically, 78% of Minnesota providers reported engaging in these activities, compared with 69% of providers across all MAPCP Demonstration states). Yet the Medicare beneficiaries who completed our patient experience survey reported difficulty getting questions answered or medical appointments after hours. This disconnect may be driven by a lack of awareness among patients of practices' new hours or phone lines, which practices often told us they were working to address.

We found no difference in the utilization of primary care visits among Medicare FFS beneficiaries receiving care from demonstration practices and non-PCMH comparison practices. This result may be because HCH practices' new after-hours phone lines and care coordination activities did not increase the frequency of Medicare beneficiaries' primary care visits, contrary to the state's expectations. Alternatively, after-hours phone lines and the availability of care coordinators could have resulted in fewer unnecessary visits (by addressing patient questions over the phone), while practices' care coordinators could have simultaneously identified and brought in more patients for needed visits (by monitoring a patient registry and calling patients to invite them to come in for needed services and screenings)—creating two simultaneous changes that canceled each other out.

Compared with the average across all MAPCP Demonstration states, a lower share of Minnesota providers reported monitoring patients' care during hospital stays, although a higher share reported actively coordinating ER care. Our claims analysis found no difference in the rates of follow-up visits after hospital discharges and 30-day unplanned readmissions between Medicare FFS beneficiaries in HCH practices and non-PCMH comparison practices. These results may reflect that practices were not engaging effectively in care coordination efforts, or it could be a result of a statewide campaign to reduce hospital readmissions,¹¹ in which both demonstration and comparison practices were eligible to participate and thus both groups may have been performing at a high level on these measures. It is also possible that Minnesota Medicare beneficiaries may have already been receiving relatively well-coordinated primary care even before the MAPCP Demonstration began, as evidenced by both providers and beneficiaries telling us that multiple care coordinators were sometimes assigned to patients, funded through different programs and entities. It is also possible that HCH practices were focusing on such a small subset of their sickest patients that statistically significant changes in care patterns were not detectable. This latter theory is supported by the findings from our provider survey, which revealed that Minnesota practices tended to be engaging in care coordination efforts targeted to a subset of their patients rather than their entire patient population—consistent with the state's HCH standards.

Among adult Medicaid beneficiaries, these patients had an increased likelihood of receiving both primary and specialty care in the first year of the demonstration, in line with the state's expectations, but had a decreased likelihood of receiving such care by the third year of the demonstration. This finding could indicate that HCH practices focused on addressing previously unmet needs of Medicaid patients in the early part of the demonstration, then shifted their attention to Medicare patients in the latter part of the demonstration. This theory is supported by the fact that the state released an HCH toolkit on coordinating care for Medicare beneficiaries midway through the demonstration, and Medicare beneficiaries with multiple chronic conditions had an increased likelihood of having primary care and medical specialist visits in the third year of the demonstration (see *Table 8-23* later in this chapter).

8.5 Beneficiary Experience with Care

This section describes the changes that practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (*Section 8.5.1*), beneficiaries' experiences with aspects of their care that have not yet been discussed in this chapter (*Section 8.5.2*), and a synthesis of these findings (*Section 8.5.3*). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

8.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

HCH practices were required to engage in several new activities likely to change patients' experience with care, including having care coordinators work with patients to develop care plans and answer their questions between appointments. More indirect practice activities that may have led to changes in care processes included practices' new attention to engaging in quality improvement projects and involving patients as advisors to their practices. This latter

¹¹ <http://www.rarereadmissions.org>

requirement was something that, with the exception of FQHCs, nearly all practices certified as HCHs had not previously had in place. One practice told us that the new patients who sat on their advisory board had helped them understand what their patients needed, what their patients comprehended from the information they sent them, and what they needed to do to improve patient satisfaction. One patient advocate, however, thought that with all the new processes the state was trying to get in place in practices in the first year of the demonstration, there was not much focus on getting practices to view patients as partners and involve them in shared decision making about treatment options.

In the second year of the demonstration, the state offered an HCH learning collaborative meeting on improving patients' experience of care, including encouraging patient self-management of their conditions and shared decision making. Several practices we interviewed described an increased focus that year on developing care plans and using care plans as a starting point for patient self-management, because care plans usually included individualized health goals.

By our third-year site visit in 2014, more practices had recruited patient advisors, and practices were continuing to focus on increasing patient engagement and shared decision making. Several practices undertook efforts to train care coordinators and other staff in motivational interviewing and felt that this had been critical in increasing patient engagement and developing individualized care plans for patients.

The provider survey found that Minnesota practices were engaging in efforts to engage patients and support patients' self-management goals at rates comparable to the eight-state demonstration average, although a significantly higher share of Minnesota providers reported assessing values and preferences of patients with significant health problems and incorporating this information into care planning (59% compared with the eight-state MAPCP Demonstration average of 51%).

8.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of the HCH initiative. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. It should be noted that beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales. These scales combined related items to form summary scores that are more reliable indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP.
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner.

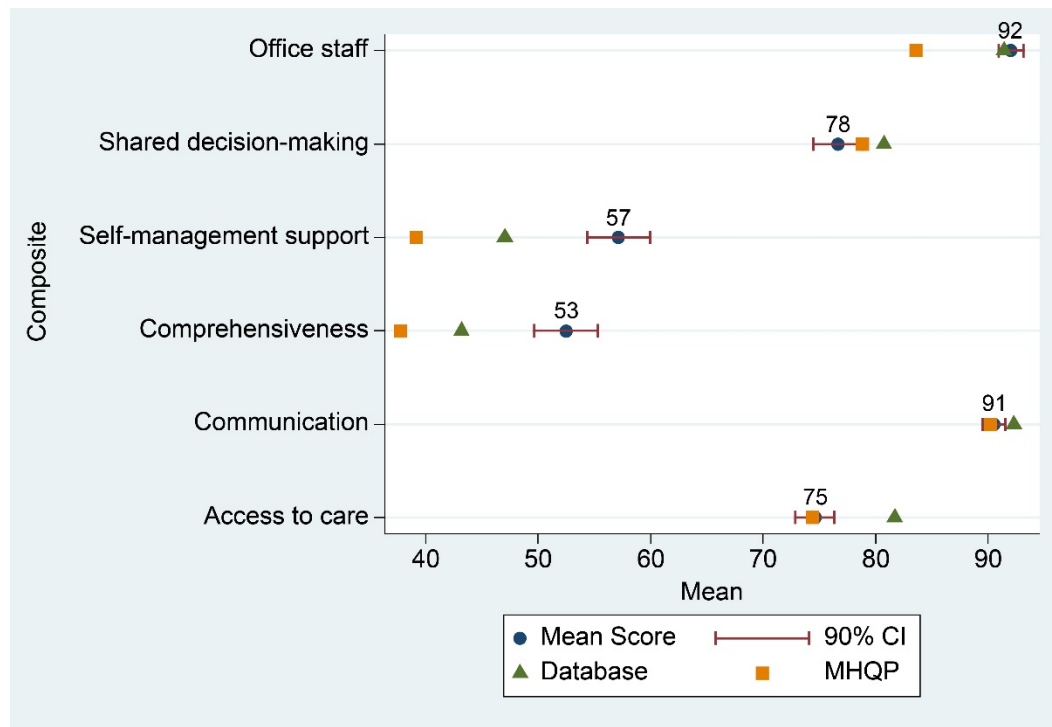
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems.
- *Self-management support.* Two yes/no questions about goal setting and barriers to care.
- *Shared decision making.* Three items regarding medication use.
- *Office staff.* Two items about interactions with medical practice office staff.

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 8-2** contains the composite scales of Minnesota and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study¹²—two of the largest available studies using the CAHPS PCMH survey. The composite scale scores we present are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status). It should be noted that the means and 90 percent confidence interval ranges presented for MAPCP Demonstration practices in Minnesota are based on CAHPS PCMH surveys fielded among *elderly* Medicare FFS beneficiaries, whereas the CAHPS Database and the MHQP data are the results of surveys of adults *of all ages*.

As shown in **Figure 8-2**, Minnesota Medicare beneficiaries rated HCH practices significantly higher than the reference groups rated the Boston-area practices encompassed in the MHQP score and the practices encompassed within AHRQ’s national database of CAHPS scores for both the *self-management support* composite score and the *comprehensiveness* composite score. Minnesota practices achieved a high score on the *office staff* interactions composite measure that was comparable to the national CAHPS database, and well above the MHQP Boston practices, and a high score on the *communication* composite—which was in line with the two reference groups’ scores. Minnesota practices fared slightly worse than the national CAHPS database on the *shared decision-making* composite scale, and was in line with the MHQP reference group. Minnesota’s *access to care* composite score was lower than the national database’s average score and in line with the MHQP score.

¹² The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study were the source of the original psychometric assessments for the CAHPS PCMH composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 8-2
Minnesota's CAHPS PCMH survey composite measures compared with two reference groups



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

Communication. On the basis of Medicare FFS beneficiaries' responses to our survey, Minnesota HCH practices earned an adjusted score of 90 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (*Figure 8-2*). This favorable performance on this composite reflects the following:

- 96 percent of respondents felt that their providers usually or always knew the important information from their medical history;
- 97 percent believed that their providers usually or always listened carefully to them;
- 98 percent felt that their providers usually or always showed respect for what they had to say;
- 98 percent said that their providers usually or always explained things in a way that was easy to understand;
- 97 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns; and
- 97 percent felt that their providers usually or always spent enough time with them.

Our focus groups, which included not only Medicare FFS beneficiaries and their caregivers but also Medicaid beneficiaries, yielded less positive findings. Focus group participants who were patients had mixed views on their communications with providers, although most participants who were family caregivers felt that providers were able to communicate effectively with the patient while also including them in discussions. Participants appreciated it when providers asked them if they understood everything at the end of a visit and were genuinely available to answer questions. This seemed more common than not, although a small number of participants, especially dually eligible participants, felt that their provider did not understand them or dismissed their feelings, beliefs, or experiences—prompting several of these participants to switch providers (typically within the same practice). On a more positive note, many participants reported that, within the past several years, they had begun receiving visit summaries after each appointment, including a list of the patient’s medications, the patient’s medical conditions, a summary of that day’s discussion with the provider, and recommendations for the future, which were generally viewed as helpful. On the whole, our focus group participants were pleased with their PCPs and felt that their providers cared about them as people; many used the word “thorough” to describe their provider, and many commented that their provider seemed to view them as “more than a number.” Yet several participants were also frustrated that their visits with providers sometimes felt rushed, because there seemed to be pressure on providers to see more patients per day than in the past.

Access to care. As noted earlier in this chapter, Minnesota HCH practices earned a weighted score of 75 out of 100 on a multiquestion composite scale that measured how easily patients could access their primary care practices—perhaps lower than one might have expected, given the state’s focus on encouraging 24-hour-a-day/7-day-a-week access to care (*Figure 8-2*). This level of access to care, from patients’ perspectives, was also reflected in our focus groups. (See *Section 8.4.1* for further discussion of beneficiaries’ experience accessing care and practices’ efforts to make beneficiaries more aware of the availability of after-hours services.)

Care coordination. As noted earlier in this chapter, findings from our CAHPS PCMH survey were quite positive when it came to care coordination, with 90 percent of Medicare FFS respondents reporting that their provider usually or always seemed up to date on the care they had received from specialists. Focus group participants held generally positive views about the coordination of their care, but they were usually unaware of their care coordinator or reported having multiple care coordinators (which was corroborated by our provider interviews), and they had mixed views of care coordinators. (See *Section 8.4.1* for further discussion of beneficiaries’ views on the coordination of their care.)

Self-management support. On the basis of Medicare FFS beneficiaries’ responses to our CAHPS PCMH survey, Minnesota HCH practices earned a weighted score of 57 out of 100 on a multiquestion composite scale that assessed the degree to which practices offered patients self-management support (*Figure 8-2*). This score suggests that there is room for improvement, but it is higher than patient ratings in our two CAHPS reference groups—which may reflect the fact that elderly Medicare beneficiaries could be expected to have more opportunities to receive self-management support, compared with the adults surveyed in our two CAHPS reference groups, who are likely to be healthier. The self-management composite measure reflects the fact that:

- 67 percent of respondents had practice staff who talked to them about specific health goals; and
- 45 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

Roughly consistent with these findings, about half of our focus group participants reported that their PCPs offered some type of support to help them take care of themselves outside the clinic. Most commonly, participants said they were provided with nutrition counseling and ideas about diet and exercise. Some participants had taken part in classes suggested by their provider, including classes on diabetes, fall prevention, cardiovascular disease, and weight management. Most did not find these useful, and instead found the content too basic and not relevant for their particular situation. One participant said her provider recommended a support group, but she did not attend because her insurance would not cover its cost. A few participants reported engaging in goal setting with their provider, such as setting goals related to diabetes control, medication adherence, asthma control, and tobacco cessation. Several participants received print-outs following visits that included recommendations for between-visit care.

Shared decision making. On the basis of Medicare FFS beneficiaries' responses to our CAHPS PCMH survey, Minnesota HCH practices earned a score of 77 out of 100 on a composite that assessed the degree to which practices engaged in shared decision making with patients (*Figure 8-2*), which was an area that practices told us they were actively working on improving in our annual interviews. This score is slightly lower than the ratings patients in our two CAHPS reference groups gave their providers—suggesting that elderly Medicare beneficiaries in the MAPCP Demonstration may experience slightly less involvement in their treatment decisions than the adults in our two reference groups. It is unclear whether this reflects Medicare beneficiaries' preference to defer to clinicians or whether Medicare beneficiaries are offered fewer opportunities to help determine their treatment courses.

The shared decision making composite measure reflects the fact that:

- 94 percent of respondents reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication;
- 77 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication; and
- 77 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Focus group participants said they liked the idea of shared decision making and generally wanted a provider who would work with them rather than dictate treatment decisions to them. Several participants said their provider outlined all available treatment options, including the pros and cons of each, and worked with them to come to a decision, which participants

appreciated. Several others described bringing a list of questions to their provider, and most of these respondents reported that their questions were welcomed and answered comprehensively. A smaller number of participants described physicians who did not engage in this type of shared decision making or who actively discouraged or ignored patient opinions, including one respondent who was told by a physician: “I have a medical degree—you don’t.” Medicaid beneficiaries and dually eligible beneficiaries were less likely than Medicare beneficiaries to report that they had a partnership with their provider. Several focus group participants said they wanted to be on fewer medications, and about half of these respondents said they had been successful in working with their provider to reduce their prescriptions.

Office staff. On the basis of Medicare FFS beneficiaries’ responses to the CAHPS PCMH survey, Minnesota HCH practices earned a score of 92 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks in a respondent’s practice (*Figure 8-2*). When asked to give a global rating of their provider, 92 percent of Minnesota Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. More than half (56%) gave their provider the highest possible rating—10 out of 10.

8.5.3 Discussion of Beneficiary Experience with Care

Helping patients self-manage their conditions and involving them in shared decision making was clearly a focus of Minnesota’s HCH initiative. The state explicitly tried to emphasize these aspects of the PCMH model through certification standards and training offerings, and practices actively worked on these areas throughout the demonstration period. In particular, practices we interviewed were working on adopting motivational interviewing to identify health goals to include in patient care plans and referring patients to classes aimed at helping those with diabetes or other conditions self-manage their condition. Practices also recruited patients as advisors to help them make patient-centered changes to their practice and engaged in quality improvement projects aimed at improving how they deliver care.

Despite these efforts, it appeared that practices still had some room to grow in this area. We found that one-third of Medicare patients surveyed were not asked about health goals, and more than half were not asked about health barriers that needed addressing. Our focus group findings also revealed that few patients were asked to identify their health goals, and most found the self-management classes to which they were referred to be too basic. In Minnesota, developing care plans for patients with chronic conditions, helping these patients self-manage their conditions, and involving patients in shared decision-making were some of the PCMH activities that the lowest share of providers reported engaging in at a high level, according to our survey. On the basis of these findings, it appears that these tasks might be relatively advanced PCMH capabilities that may take time to develop, and that practices might not be able to focus on them until after they master more fundamental capabilities, such as care coordination.

8.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Minnesota expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees’ views on the likelihood of these savings materializing (*Section 8.6.1*), actual impacts on service utilization and expenditures that we observed (*Section 8.6.2*), impacts on certain types of expenditures (*Section 8.6.3*), calculations

identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 8.6.4*), and a synthesis of these findings (*Section 8.6.5*).

8.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

Minnesota expected that, relative to the pre-demonstration average Medicare spending (for Parts A and B) of \$575 per beneficiary per month (PBPM) in the state, participation in the MAPCP Demonstration would produce average *gross* savings of \$27 PBPM. Although spending on outpatient primary care and specialty services was expected to go up slightly, spending on inpatient acute-care hospital services was expected to decrease substantially, and additional, smaller decreases were expected in spending on ER visits and skilled nursing facility services. After taking into account the HCH payments expected to be paid to practices, Minnesota estimated that Medicare would save \$15.20 PBPM *on net*.

In interviews with practice staff, they were optimistic that care coordinators were changing utilization patterns in ways that would improve health outcomes and lower spending. Specifically, practices believed that care coordinators generally had been successful in preventing unnecessary ER visits.

8.6.2 Impacts on Utilization and Expenditures

The HCH initiative was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare expenditures and Medicare and Medicaid utilization outcomes between the HCH initiative and one CG: non-PCMH practices.

- **Table 8-14** reports on changes in total Medicare expenditures and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables. Minnesota did not provide expenditure data for Medicaid managed care encounters. Because managed care encounters represent most Medicaid claims data provided by the state, we were unable to examine Medicaid expenditures.

- **Table 8-15** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries.
- **Table 8-16** reports on changes in *all-cause admissions* and *all-cause ER visits* among both adult and child Medicaid beneficiaries and *low birthweight admissions* among Medicaid children.

For Medicare, estimates in these tables are interpreted as the difference in the rate of these admissions and visits per 1,000 beneficiary quarters associated with the MAPCP

Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 8.6.5**.

Table 8-14
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Total Medicare		
Year One (N = 63,378)	45.05*	[0.65, 89.45]
Year Two (N = 96,515)	26.97	[-9.29, 63.23]
Year Three (N = 132,963)	34.14*	[0.95, 67.34]
Overall (N = 159,435)	34.05*	[1.45, 66.66]
Overall Aggregate	\$85,495,768*	
Acute-care		
Year One (N = 63,378)	15.28	[-5.54, 36.10]
Year Two (N = 96,515)	8.37	[-11.70, 28.44]
Year Three (N = 132,963)	13.97	[-5.72, 33.67]
Overall (N = 159,435)	12.48	[-4.52, 29.47]
Overall Aggregate	\$31,326,017	

(continued)

Table 8-14 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Post-acute care		
Year One (N = 63,378)	5.35	[-7.82, 18.52]
Year Two (N = 96,515)	0.32	[-10.68, 11.32]
Year Three (N = 132,963)	8.26*	[0.43, 16.10]
Overall (N = 159,435)	5.20	[-3.06, 13.47]
Overall Aggregate	\$13,062,750	
ER visits not leading to hospitalization		
Year One (N = 63,378)	2.88*	[0.63, 5.13]
Year Two (N = 96,515)	3.19*	[0.78, 5.61]
Year Three (N = 132,963)	3.77*	[0.91, 6.63]
Overall (N = 159,435)	3.41*	[1.01, 5.82]
Overall Aggregate	\$8,570,084*	
Outpatient		
Year One (N = 63,378)	20.73*	[7.87, 33.59]
Year Two (N = 96,515)	21.19*	[8.15, 34.23]
Year Three (N = 132,963)	1.68	[-11.63, 14.99]
Overall (N = 159,435)	11.55	[-0.09, 23.19]
Overall Aggregate	\$28,992,343	
Specialty physician		
Year One (N = 63,378)	-9.26*	[-15.56, -2.96]
Year Two (N = 96,515)	-11.70*	[-17.48, -5.93]
Year Three (N = 132,963)	-5.88	[-11.80, 0.03]
Overall (N = 159,435)	-8.37*	[-13.75, -2.99]
Overall Aggregate	-\$21,021,533*	
Primary care physician		
Year One (N = 63,378)	0.12	[-3.22, 3.45]
Year Two (N = 96,515)	-1.99	[-5.22, 1.23]
Year Three (N = 132,963)	-0.95	[-5.04, 3.14]
Overall (N = 159,435)	-1.07	[-4.46, 2.33]
Overall Aggregate	-\$2,674,179	
Home health		
Year One (N = 63,378)	3.30*	[0.05, 6.54]
Year Two (N = 96,515)	2.75	[-0.64, 6.14]
Year Three (N = 132,963)	5.28*	[2.42, 8.13]
Overall (N = 159,435)	4.10*	[1.28, 6.91]
Overall Aggregate	\$10,283,789*	

(continued)

Table 8-14 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Other non-facility		
Year One (N = 63,378)	0.96	[-0.93, 2.85]
Year Two (N = 96,515)	0.25	[-1.73, 2.23]
Year Three (N = 132,963)	0.95	[-0.87, 2.76]
Overall (N = 159,435)	0.73	[-0.98, 2.45]
Overall Aggregate	\$1,837,024	
Laboratory		
Year One (N = 63,378)	0.72	[-0.68, 2.11]
Year Two (N = 96,515)	-0.55	[-1.84, 0.74]
Year Three (N = 132,963)	-0.59	[-1.65, 0.47]
Overall (N = 159,435)	-0.32	[-1.34, 0.70]
Overall Aggregate	-\$804,166	
Imaging		
Year One (N = 63,378)	-0.38	[-1.42, 0.66]
Year Two (N = 96,515)	-0.97	[-2.09, 0.16]
Year Three (N = 132,963)	-0.80	[-1.65, 0.04]
Overall (N = 159,435)	-0.77	[-1.63, 0.09]
Overall Aggregate	-\$1,934,064	
Other facility		
Year One (N = 63,378)	-0.18	[-1.08, 0.71]
Year Two (N = 96,515)	-0.55	[-1.42, 0.32]
Year Three (N = 132,963)	0.10	[-0.38, 0.58]
Overall (N = 159,435)	-0.16	[-0.81, 0.49]
Overall Aggregate	-\$399,387	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found no evidence that the HCH initiative decreased total Medicare expenditures or many of its components. Specifically, **Table 8-14** shows the following:

- The growth in *overall aggregate total Medicare expenditures* was \$85.5 million greater for beneficiaries assigned to HCH practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate expenditures for ER visits not leading to hospitalization* was \$8.6 million greater for Medicare beneficiaries assigned to HCH practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate specialty physician expenditures* was \$21.0 million lower for Medicare beneficiaries assigned to HCH practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate home health expenditures* was \$10.3 million greater for Medicare beneficiaries assigned to HCH practices compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for acute-care expenditures, post-acute care expenditures, outpatient expenditures, primary care physician expenditures, other non-facility expenditures, laboratory expenditures, imaging expenditures, or other facility expenditures.

Table 8-15
Minnesota: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
All-cause admissions		
Year One (N = 63,378)	1.28	[-2.19, 4.74]
Year Two (N = 96,515)	0.46	[-3.01, 3.93]
Year Three (N = 132,963)	1.20	[-2.67, 5.07]
Overall (N = 159,435)	0.98	[-2.35, 4.31]
Overall Aggregate	823	
ER visits not leading to hospitalization		
Year One (N = 63,378)	5.02	[-2.89, 12.93]
Year Two (N = 96,515)	8.46*	[0.89, 16.03]
Year Three (N = 132,963)	6.04	[-1.79, 13.87]
Overall (N = 159,435)	6.60	[-0.52, 13.71]
Overall Aggregate	5,521	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, **Table 8-15** shows that no statistically significant overall impacts were observed for all-cause admissions and ER visits not leading to hospitalization.

Table 8-16
Minnesota: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Thirteen quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
All-cause admissions						
Year One	199,049	0.18*	[0.03, 0.32]	156,319	0.41*	[0.10, 0.71]
Year Two	239,076	0.06	[-0.10, 0.21]	198,952	0.48*	[0.13, 0.82]
Year Three	283,499	-0.36*	[-0.58, -0.14]	261,198	0.22	[-0.06, 0.49]
Overall	356,479	-0.08	[-0.25, 0.08]	328,625	0.33*	[0.05, 0.61]
Overall Aggregate		-2,046			6,446*	
ER visits not leading to hospitalization						
Year One	199,049	0.55	[-0.20, 1.30]	156,319	-0.45	[-1.42, 0.52]
Year Two	239,076	1.08*	[0.35, 1.80]	198,952	0.35	[-0.51, 1.20]
Year Three	283,499	0.82*	[0.09, 1.55]	261,198	0.56	[-0.27, 1.40]
Overall	356,479	0.74*	[0.07, 1.40]	328,625	0.04	[-0.72, 0.80]
Overall Aggregate		18,253*			0,787	
Low birth weight admissions						
Overall	36,939	-0.02	[-0.09, 0.05]	N/A	N/A	N/A
Overall Aggregate		-8				

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = data not available; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Turning to Medicaid beneficiaries, *Table 8-16* shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 6,446 among all Medicaid adult beneficiaries assigned to HCH initiative practices over the 3.25-year demonstration period compared with beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 18,253 among Medicaid child beneficiaries assigned to the HCH initiative compared with beneficiaries assigned to non-PCMH practices.

We did not observe any statistically significant *overall* impacts for low birth weight.

8.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories analyzed across all eight MAPCP Demonstration states, we also analyzed categories noted specifically in Minnesota's MAPCP Demonstration application that were expected to be affected by the demonstration. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. *Table 8-17* contains a mixture of measures of expenditures and measures of utilization. Expenditure measures assess the rate of growth in spending on hospital professionals, ER professionals, nursing home professionals and facilities, and office/home visits. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the non-PCMH CG. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a *positive* value corresponds to *greater growth* compared with the CG. Meanwhile, utilization measures in this table assess the use of hospital professionals, nursing home professionals, ER professionals, and office/home visits. Utilization estimates in this table are interpreted as the difference in the rate of certain events associated with the MAPCP Demonstration per 1,000 beneficiary quarters. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG. Details on these measures can be found in *Appendix D*.

Table 8-17
Minnesota: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 159,435)	0.22	[-1.67, 2.10]
Nursing home professional expenditures Overall (N = 159,435)	14.85	[-4.08, 33.79]
Nursing home facility expenditures Overall (N = 159,435)	0.92	[-0.67, 2.51]
ER professional expenditures Overall (N = 159,435)	0.37	[0.00, 0.74]
Office/home visit expenditures Overall (N = 159,435)	-1.78	[-6.96, 3.39]
Hospital professional events Overall (N = 159,435)	-5.26	[-29.12, 18.61]
Nursing home professional events Overall (N = 159,435)	-4.56	[-24.27, 15.15]
ER professional events Overall (N = 159,435)	10.68	[-0.76, 22.11]
Office/home visit events Overall (N = 159,435)	8.83	[-85.62, 103.28]

NOTES:

- Expenditures for hospital professional, nursing home professional, ER professional, nursing home facility, and office/home visits are PBPM.
- Estimates for expenditures are interpreted as the difference in the rate of growth in expenditures compared with the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- All other outcomes are rates per 1,000 beneficiary quarters.
- Estimates for non-expenditure outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

As shown in **Table 8-17**, no statistically significant *overall* impacts were observed for Medicare hospital professional expenditures, nursing home professional expenditures, nursing home facility expenditures, ER professional expenditures, office/home visit expenditures,

hospital professional events, nursing home professional events, ER professional events, or office/home visit events.

8.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Minnesota relative to non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics: gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, whereas net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in *Table 8-14* from *Section 8.6.2*. (See *Appendix C* for a detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from *Table 8-14*. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP Demonstration fees. Positive net savings estimates denote that either there were gross losses or the MAPCP Demonstration fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 8-18 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 12 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 8-18
Minnesota: Estimates of gross savings, fees paid, and net savings and return on fees, relative to non-PCMH comparison beneficiaries

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Year One	-\$22,326,131*	-\$44,330,704	-\$321,558	\$437,563	-\$22,763,694*	-\$44,768,266	-\$759,121	-51.02
Year Two	-\$21,191,065	-\$49,678,427	\$7,296,297	\$836,180	-\$22,027,245	-\$50,514,607	\$6,460,117	-25.34
Year Three	-\$41,978,572*	-\$82,788,486	-\$1,168,659	\$1,156,078	-\$43,134,650*	-\$83,944,563	-\$2,324,736	-36.31
All Years	-\$85,495,768*	-\$167,360,133	-\$3,631,403	\$2,429,820	-\$87,925,588*	-\$169,789,953	-\$6,061,223	-35.19

NOTES:

- Gross savings: Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- Net savings: The estimate of gross savings minus the total Medicare fees paid.
- Fees: Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- Return on fees: The estimate of gross savings divided by total Medicare fees paid.

PBPM = per beneficiary per month; PCMH = patient-centered medical home.

SOURCE: Medicare claims 2012:Q1–2014:Q4.

* Statistically significant at the 10 percent level.

In the analysis of budget neutrality relative to the non-PCMH CG, **Table 8-18** shows the following:

- The MAPCP Demonstration in Minnesota resulted in an estimated gross loss of \$85,495,768 for Medicare with a 90 percent confidence interval that extended from \$3.6 million to \$167.4 million.
- Total demonstration fees paid out totaled only \$2,429,820 because so many practices chose not to submit claims for demonstration payments on an ongoing basis. Had all participating practices submitted claims for all of the demonstration payments they were entitled to, this number would have been much higher. When the total fees actually paid are added to the increased spending generated by practices in the demonstration, net losses to Medicare totaled \$87,925,588. Net losses were also statistically significant with a confidence interval that extended from \$6.1 million to \$169.8 million. It should be noted that Minnesota's large negative return on demonstration fees, -\$35.19 for every \$1.00 spent, is large because of how this metric is calculated—with total demonstration fees paid in Minnesota as its denominator. Had more practices opted to submit claims for demonstration payments in Minnesota, the denominator for this return on fees metric would have been a much larger dollar amount, thus yielding a much smaller negative return on fees.
- Estimates of gross and net losses were statistically significant in Year 1 and Year 3 of the demonstration.

8.6.5 Discussion of Effectiveness

Although practice staff we interviewed seemed confident that their efforts had already prevented unnecessary ER visits and generally changed health care utilization patterns in ways that would improve health outcomes and lower spending, our analyses of Medicare claims data did not bear out these expectations.

We found that total Medicare expenditures grew faster per beneficiary over the course of the 3-year demonstration in HCH practices relative to comparison non-PCMH practices. Specific sources of this increase included spending on home health services and ER visits, which grew faster in demonstration practices than in comparison practices and outweighed decreases in spending on specialty physician services.

Although both the state and the Medicare program had hoped that Medicare's participation in Minnesota's HCH initiative would be budget neutral on net, joining this initiative ultimately ended up costing the Medicare program \$87.9 million over 3 years (\$2.4 million in demonstration payments to practices, plus \$85.5 million in the form of increased spending on health care services). In terms of utilization, we found no difference in the rate of Medicare FFS beneficiaries' all-cause admissions to the hospital, nor in their ER visits relative to the non-PCMH CG.

Practices and payers noted that several other payment and delivery systems reforms—including the movement toward ACO-style "total cost of care" contracts in their state and a

statewide campaign aimed at reducing avoidable hospital readmissions—could have made it difficult to parse out cost efficiencies achieved directly as a result of the HCH initiative. One payer felt that some practices had already maximized efficiencies, which would make it very difficult for them to achieve additional savings.

8.7 Special Populations

This section describes efforts by practices or the overall HCH initiative to target special patient populations, according to our interviews (*Section 8.7.1*); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization, based on claims data (*Sections 8.7.2 and 8.7.3*); and a synthesis of these findings (*Section 8.7.4*).

8.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

Minnesota's HCH initiative explicitly targeted certain patient populations through its "complexity tier assignment tool," a worksheet used by practices to identify the size of monthly HCH demonstration payment amounts available for Medicaid and Medicare beneficiaries. Practices received higher payments for patients with a larger number of conditions, and additional payment multipliers were applied if the patient had a serious and persistent mental illness or spoke English as a second language; they received no payments if the patient had zero chronic conditions. Because practices had a financial incentive to identify and offer enhanced services to patients with chronic conditions or mental illness, or non-native English speakers, the state's hope was that these patient populations would experience improved outcomes.

Given the design of Minnesota's payment model, it is not surprising that the patients for whom practices submitted claims for demonstration payments tended to be sicker (as measured by HCC and Charlson Comorbidity Index scores, and the presence of various chronic conditions) than the patients for whom demonstration practices chose *not* to submit claims, as shown in *Table 8-19*. Practices were also more likely to submit claims for demonstration payments if a Medicare patient was under the age of 65 or over the age of 85; female; dually eligible for Medicare and Medicaid; disabled; and institutionalized.

Table 8-19
Minnesota: Characteristics that differentiated patients for whom demonstration claims were submitted vs. patients for whom demonstration claims were not submitted

Characteristic	Billed patients ¹	Nonbilled patients ²
Demographic characteristics		
Age < 65 (%)	35	27
Age 65–75 (%)	21	37
Age 76–85 (%)	25	25
Age > 85 (%)	20	12
Mean age	70	69
White (%)	88	90
Urban place of residence (%)	73	74
Female (%)	63	57
Dually eligible beneficiaries (%)	31	23
Disabled (%)	41	32
ESRD (%)	2	1
Institutionalized (%)	20	1
Health status		
Mean HCC score groups	1.57	1.00
Low risk (< 0.48) (%)	7	27
Medium risk (0.48–1.25) (%)	46	51
High risk (> 1.25) (%)	47	23
Mean Charlson Comorbidity Index score	1.39	0.68
Low Charlson Comorbidity Index score (= 0) (%)	46	69
Medium Charlson Comorbidity Index score (≤ 1) (%)	23	51
High Charlson Comorbidity Index score (> 1) (%)	31	23
Chronic conditions (%)		
Essential hypertension	37	24
Lipid metabolism disorders	25	14
Diabetes without complications	27	14
Cardiac dysrhythmias and conduction disorders	15	9
Coronary artery disease	15	8
Other respiratory disease	15	8
Acute and chronic renal disease	14	7
Anemia	13	6
Dizziness, syncope, and convulsions	12	5
Disorders of joint	10	6
Hypothyroidism	10	5
Diabetes with complications	11	4
Heart failure	10	4
Chest pain	8	4
Urinary tract infection	10	4
Renal failure	8	3
Malaise and fatigue (including chronic fatigue syndrome)	6	3
Valve disorders	3	2
Peripheral vascular disease	3	1
Cardiomyopathy	3	1
Strokes	2	1
Dementias	2	0

NOTES:

¹ “Billed patients” are patients for whom practices opted to submit claims for demonstration payments.

² “Nonbilled patients” are patients for whom practices chose not to submit claims for demonstration payments.

ESRD = end-stage renal disease; HCC = Hierarchical Condition Category.

The CAHPS PCMH survey of Medicare FFS beneficiaries included some questions about mental health care but did not include questions that explicitly asked about language services for non-native English speakers or care for patients with multiple chronic conditions. Findings from the survey indicate that Minnesota HCH practices earned a score of 53 out of 100 on a weighted multiquestion composite scale that measures the degree to which practices ask about behavioral health issues (**Figure 8-2**). This composite reflects the following:

- 62 percent of respondents said their practice staff asked if they felt depressed;
- 54 percent reported that practice staff talked to them about things in their lives that worried or stressed them; and
- 37 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

This composite score is higher than the average scores for the two CAHPS PCMH survey CGs, indicating that Minnesota HCH practices were more likely to screen for and attempt to address depression in the Medicare beneficiaries we surveyed than were the practices who treated the broader patient populations captured by the two CAHPS PCMH survey reference groups, drawn from patients residing in other parts of the country. Because the CAHPS PCMH survey data differ from the two reference groups in two ways—both in terms of geography and in terms of the age of the patients surveyed—it is not possible to disentangle whether this increased attention to behavioral health issues reflects the way *Minnesota practices* treat patients (of any age), the way practices (of any geographic location) treat *older patients*, or the way *Minnesota practices* treat *older patients*. We also are unable to determine whether there is a difference in the way HCH practices and non-HCH practices in Minnesota address depression, because the CAHPS PCMH survey was fielded only among the patients of HCH practices.

8.7.2 Impacts on Special Populations

The HCH initiative was expected to improve quality-of-care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care. We therefore analyzed care patterns for beneficiaries with multiple chronic conditions and with behavioral health conditions (whom practices were incentivized to target through Minnesota’s HCH payment model), as well as persons with disabilities and persons who may experience disparities in access to and quality of health care as a result of being dually eligible for Medicare and Medicaid, living in rural areas, or belonging to racial/ethnic minority.

- **Table 8-20** reports on changes in total Medicare expenditures for the special populations identified above.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater*

growth in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

- **Tables 8-21 through 8-28** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 8-29 through 8-31** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 8.7.4**.

Table 8-20
Minnesota: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Multiple chronic conditions only		
Year One (N = 15,241)	206.77*	[71.71, 341.84]
Year Two (N = 22,864)	19.41	[-112.45, 151.27]
Year Three (N = 24,972)	325.51*	[220.63, 430.39]
Overall (N = 31,924)	197.75*	[103.61, 291.89]
Overall Aggregate	\$109,768,013*	
Behavioral health conditions only		
Year One (N = 13,458)	40.55	[-48.89, 130.00]
Year Two (N = 20,814)	-3.43	[-85.73, 78.88]
Year Three (N = 22,453)	180.97*	[95.58, 266.36]
Overall (N = 28,615)	88.48*	[15.63, 161.33]
Overall Aggregate	\$43,899,488*	
Disabled beneficiaries only		
Year One (N = 20,342)	39.39	[-38.08, 116.85]
Year Two (N = 32,892)	8.19	[-67.84, 84.22]
Year Three (N = 43,371)	61.25	[-0.29, 122.79]
Overall (N = 51,687)	39.93	[-19.97, 99.82]
Overall Aggregate	\$32,841,083	
Dually eligible beneficiaries only		
Year One (N = 14,970)	8.00	[-86.65, 102.66]
Year Two (N = 23,886)	-13.22	[-99.46, 73.02]
Year Three (N = 31,287)	29.93	[-49.46, 109.31]
Overall (N = 37,077)	11.61	[-62.14, 85.36]
Overall Aggregate	\$6,975,898	

(continued)

Table 8-20 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Rural beneficiaries only		
Year One (N = 6,382)	99.00*	[24.56, 173.44]
Year Two (N = 8,899)	15.24	[-66.41, 96.88]
Year Three (N = 13,526)	51.47	[-25.06, 128.01]
Overall (N = 16,232)	48.85	[-23.86, 121.56]
Overall Aggregate	\$12,206,705	
Non-White beneficiaries only		
Year One (N = 6,804)	54.49	[-54.98, 163.96]
Year Two (N = 10,625)	30.71	[-83.70, 145.11]
Year Three (N = 14,065)	50.09	[-62.72, 162.91]
Overall (N = 16,596)	44.50	[-58.52, 147.53]
Overall Aggregate	\$12,196,113	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we found no evidence that the HCH initiative slowed the growth of total Medicare expenditures, and that the initiative actually increased the growth in spending for some subsets of patients. Specifically, **Table 8-20** shows the following:

- Among Medicare **beneficiaries with multiple chronic conditions**, the growth in *overall aggregate* total Medicare expenditures was \$110 million greater for beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.
- Among Medicare **beneficiaries with behavioral health conditions**, the growth in *overall aggregate* total Medicare expenditures was \$43.9 million greater for

beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.

No statistically significant *overall* impacts of the HCH initiative on total Medicare expenditures were observed among disabled beneficiaries, dually eligible beneficiaries, rural beneficiaries, and non-White beneficiaries.

8.7.3 Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group was defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS HCC high-risk category. Additional details about the chronic conditions and the CMS HCC risk category can be found in **Appendix D**. Over the first 12 quarters of the demonstration, 20 percent of MAPCP Demonstration Medicare beneficiaries (demonstration and CG) fit this profile in Minnesota.

For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before they entered the MAPCP Demonstration (or CG). Over the course of the demonstration, 18 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile. Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

The HCH initiative was expected to improve quality-of-care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality-of-care and health-outcomes measures between the HCH initiative and one CG: non-PCMH practices (limited to beneficiaries with multiple chronic conditions).

- **Table 8-21** reports on changes in six process-of-care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and one process-of-care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 8-22** reports on changes in six process-of-care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process-of-care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 8-23** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See **Section 8.3.2** for further discussion of the interpretation of these measures.

Table 8-21
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
HbA1c testing		
Year One (N = 6,499)	1.29	[-1.65, 4.23]
Year Two (N = 2,870)	2.15	[-1.72, 6.03]
Year Three (N = 945)	-2.16	[-5.91, 1.59]
Overall (N = 6,699)	1.21	[-1.56, 3.98]
Retinal eye examination		
Year One (N = 6,499)	4.98	[-1.80, 11.77]
Year Two (N = 2,870)	1.98	[-2.45, 6.42]
Year Three (N = 945)	-1.69	[-8.02, 4.65]
Overall (N = 6,699)	3.54	[-1.47, 8.55]
LDL-C screening		
Year One (N = 6,499)	0.77	[-2.47, 4.01]
Year Two (N = 2,870)	2.13	[-2.24, 6.49]
Year Three (N = 945)	1.62	[-5.81, 9.04]
Overall (N = 6,699)	1.23	[-1.51, 3.96]
Medical attention for nephropathy		
Year One (N = 6,499)	1.43	[-2.13, 4.98]
Year Two (N = 2,870)	2.00	[-1.50, 5.50]
Year Three (N = 945)	-3.26	[-9.35, 2.82]
Overall (N = 6,699)	1.16	[-1.95, 4.26]
Received all 4 diabetes tests		
Year One (N = 6,499)	4.68	[-4.00, 13.37]
Year Two (N = 2,870)	1.12	[-4.53, 6.76]
Year Three (N = 945)	0.48	[-6.82, 7.78]
Overall (N = 6,699)	3.31	[-3.22, 9.83]
Received none of the 4 diabetes tests	0.19	[-0.30, 0.69]
Year One (N = 6,499)		
Year Two (N = 2,870)	-0.69	[-1.59, 0.21]
Year Three (N = 945)	1.05*	[0.31, 1.80]
Overall (N = 6,699)	0.03	[-0.42, 0.48]
Total lipid panel		
Year One (N = 12,253)	-1.84	[-4.34, 0.66]
Year Two (N = 5,028)	-2.02	[-5.25, 1.22]
Year Three (N = 1,613)	-2.14	[-8.44, 4.17]
Overall (N = 13,188)	-1.91	[-4.17, 0.34]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; HCH = Health Care Homes; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

According to **Table 8-21**, among Medicare HCH beneficiaries with multiple chronic conditions, there were no statistically significant *overall* differences observed in the rates of process-of-care measures.

Table 8-22
Minnesota: Comparison of average MAPCP Demonstration effect estimates for process-of-care indicators among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

	Adults		
	N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval
HbA1c testing			
Year One	5,636	7.13*	[0.09, 14.16]
Year Two	3,828	14.61*	[5.75, 23.47]
Year Three	1,290	-0.78	[-10.00, 8.44]
Overall	6,483	8.84*	[4.59, 13.09]
Retinal eye examination			
Year One	5,636	0.99	[-1.41, 3.39]
Year Two	3,828	-5.79	[-16.41, 4.82]
Year Three	1,290	7.47	[-1.57, 16.50]
Overall	6,483	-0.65	[-4.94, 3.64]
LDL-C screening			
Year One	5,636	9.45*	[6.16, 12.73]
Year Two	3,828	8.18	[-0.55, 16.91]
Year Three	1,290	12.07	[-11.68, 35.82]
Overall	6,483	9.31*	[3.88, 14.73]
Medical attention for nephropathy			
Year One	5,636	6.55*	[2.23, 10.88]
Year Two	3,828	20.87*	[11.46, 30.28]
Year Three	1,290	36.58*	[20.34, 52.83]
Overall	6,483	15.25*	[11.36, 19.15]
Received all 4 diabetes tests			
Year One	5,636	1.15	[-0.59, 2.90]
Year Two	3,828	-2.29	[-10.35, 5.77]
Year Three	1,290	10.02*	[7.09, 12.95]
Overall	6,483	0.99	[-1.29, 3.27]
Received none of the 4 diabetes tests			
Year One	5,636	-2.32	[-4.74, 0.10]
Year Two	3,828	-12.59*	[-21.08, -4.10]
Year Three	1,290	-3.24	[-12.92, 6.44]
Overall	6,483	-6.08*	[-9.50, -2.67]
Breast cancer screening			
Year One	11,205	2.44*	[0.66, 4.22]
Year Two	7,623	5.37*	[1.91, 8.82]
Year Three	2,603	2.61	[-11.75, 16.97]
Overall	12,193	3.50*	[0.96, 6.04]

(continued)

Table 8-22 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

	Adults		
	N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Cervical cancer screening			
Year One	20,866	2.51*	[0.47, 4.55]
Year Two	13,722	2.53*	[0.01, 5.06]
Year Three	4,641	5.26	[-0.04, 10.57]
Overall	22,715	2.84*	[0.75, 4.93]
Antidepressant medication management: 12 weeks			
Year One	6,878	2.31	[-1.45, 6.06]
Year Two	3,880	-3.71	[-10.07, 2.65]
Year Three	1,187	9.33	[-14.54, 33.21]
Overall	9,138	1.05	[-4.02, 6.12]
Antidepressant medication management: 6 months			
Year One	6,878	5.41*	[2.62, 8.20]
Year Two	3,880	3.15	[-3.30, 9.61]
Year Three	1,187	8.66	[-13.90, 31.23]
Overall	9,138	5.00*	[1.38, 8.62]
Appropriate use of asthma medications			
Year One	3,601	-0.18	[-2.83, 2.48]
Year Two	2,559	-6.12	[-13.41, 1.17]
Year Three	0,813	-3.21	[-27.46, 21.03]
Overall	4,844	-2.71	[-7.29, 1.87]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; HCH = Health Care Homes; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, we found ample evidence that Minnesota HCH impacted process-of-care measures. Specifically, *Table 8-22* shows the following:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **HbA1c testing, LDL-C screening or medical attention for nephropathy** increased among HCH beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices.
- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **receiving none of the four diabetes tests** decreased among HCH beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices.
- Among adult Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of **breast cancer screening, cervical cancer screening and antidepressant medication management at 6 months** increased among HCH beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* changes were observed for retinal eye examinations, receipt of all four diabetes tests, appropriate use of antidepressant medication management at 12 weeks, or appropriate use of asthma medications.

Table 8-23
Minnesota: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Avoidable catastrophic events ¹		
Year One (N = 15,241)	2.13	[-1.16, 5.42]
Year Two (N = 22,864)	-0.69	[-5.10, 3.71]
Year Three (N = 24,972)	2.66	[-0.90, 6.21]
Overall (N = 31,924)	1.42	[-1.59, 4.43]
PQI admissions—overall ²		
Year One (N = 15,241)	2.31	[-2.06, 6.69]
Year Two (N = 22,864)	0.54	[-4.23, 5.31]
Year Three (N = 24,972)	7.04*	[1.84, 12.25]
Overall (N = 31,924)	3.86*	[0.18, 7.54]
PQI admissions—acute ³		
Year One (N = 15,241)	1.75	[-0.42, 3.91]
Year Two (N = 22,864)	1.04	[-0.95, 3.03]
Year Three (N = 24,972)	2.37*	[0.29, 4.46]
Overall (N = 31,924)	1.79*	[0.20, 3.38]

(continued)

Table 8-23 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
PQI admissions—chronic ⁴		
Year One (N = 15,241)	0.35	[-2.74, 3.44]
Year Two (N = 22,864)	-0.68	[-4.04, 2.67]
Year Three (N = 24,972)	4.23*	[0.61, 7.86]
Overall (N = 31,924)	1.76	[-0.69, 4.21]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with multiple chronic conditions, we found some evidence that the Minnesota HCH increased rates of PQI admissions. Specifically, **Table 8-23** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **overall** and **acute PQI admissions** increased among HCH beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events and chronic PQI admissions.

The HCH initiative was expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access-to-care and care-coordination measures between the HCH initiative and one CG: non-PCMH practices (limited to beneficiaries with multiple chronic conditions).

- **Table 8-24** reports on changes in seven access-to-care and care-coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COC Index.
- **Table 8-25** reports on changes in five access-to-care and care-coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

More detail on these access-to-care and coordination-of-care outcomes can be found in **Section 8.4.2**.

Table 8-24
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)		
Year One (N = 15,241)	229.72*	[89.33, 370.10]
Year Two (N = 22,864)	71.18	[-80.32, 222.69]
Year Three (N = 24,972)	196.82*	[39.14, 354.50]
Overall (N = 31,924)	161.82*	[18.59, 305.05]
Medical specialist visits (per 1,000 beneficiary quarters)		
Year One (N = 15,241)	96.42*	[53.85, 138.98]
Year Two (N = 22,864)	65.41*	[6.88, 123.95]
Year Three (N = 24,972)	93.77*	[26.76, 160.77]
Overall (N = 31,924)	84.85*	[29.92, 139.78]

(continued)

Table 8-24 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Surgical specialist visits (per 1,000 beneficiary quarters)		
Year One (N = 15,241)	10.19	[-4.70, 25.07]
Year Two (N = 22,864)	3.71	[-11.67, 19.09]
Year Three (N = 24,972)	-3.01	[-20.37, 14.35]
Overall (N = 31,924)	2.06	[-11.94, 16.06]
Primary care visits as percent of total visits (higher quintile = larger percentage)		
Year One (N = 26,485)		
1st quintile	-2.92*	[-5.17, -0.66]
5th quintile	2.54*	[0.65, 4.44]
Year Two (N = 13,791)		
1st quintile	-1.10	[-3.43, 1.24]
5th quintile	1.01	[-1.10, 3.12]
Year Three (N = 5,825)		
1st quintile	1.10	[-1.49, 3.69]
5th quintile	-1.08	[-3.68, 1.52]
Overall (N = 27,486)		
1st quintile	-1.87	[-3.88, 0.15]
5th quintile	1.63	[-0.15, 3.40]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)		
Year One (N = 3,248)	44.80	[-4.64, 94.23]
Year Two (N = 4,833)	29.53	[-16.67, 75.72]
Year Three (N = 5,071)	19.25	[-43.03, 81.53]
Overall (N = 10,352)	29.47	[-12.71, 71.66]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 4,145)	-29.79*	[-57.05, -2.53]
Year Two (N = 6,288)	-5.73	[-30.61, 19.14]
Year Three (N = 6,708)	2.51	[-37.20, 42.21]
Overall (N = 13,138)	-8.47	[-31.27, 14.34]

(continued)

Table 8-24 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care)		
Year One (N = 30,006)		
1st quintile	-0.34	[-2.46, 1.79]
5th quintile	0.36	[-1.92, 2.65]
Year Two (N = 16,076)		
1st quintile	-0.44	[-2.97, 2.08]
5th quintile	0.48	[-2.26, 3.22]
Year Three (N = 7,124)		
1st quintile	-0.17	[-3.64, 3.31]
5th quintile	0.16	[-3.18, 3.50]
Overall (N = 30,570)		
1st quintile	-0.34	[-2.21, 1.52]
5th quintile	0.37	[-1.62, 2.37]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that the HCH initiative improved access to care, but not care coordination. Specifically, **Table 8-24** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **primary care visits** and **medical specialty visits** increased among the HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for the measures of surgical specialist visits, primary care visits as a percentage of total visits, follow-up within 14 days after discharge, 30-day unplanned readmissions, and continuity of care.

Table 8-25
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries with
multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

	Adults		
	N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Primary care visits			
Year One	22,418	7.16*	[5.34, 8.97]
Year Two	35,171	4.97*	[2.70, 7.24]
Year Three	45,671	-0.85	[-2.68, 0.97]
Overall	53,095	2.16*	[0.27, 4.04]
Medical specialist visits			
Year One	22,418	2.96*	[1.24, 4.68]
Year Two	35,171	2.02*	[0.18, 3.87]
Year Three	45,671	1.14	[-1.44, 3.73]
Overall	53,095	1.75	[-0.44, 3.93]
Surgical specialist visits			
Year One	22,418	1.22*	[0.49, 1.95]
Year Two	35,171	0.50	[-0.13, 1.13]
Year Three	45,671	-0.77*	[-1.49, -0.05]
Overall	53,095	-0.07	[-0.57, 0.44]
Primary care visits as percentage of total visits (% PC)			
Year One			
% PC < 70%	24,618	0.76	[-1.60, 3.11]
70% ≤ % PC < 100%		-0.46	[-1.89, 0.97]
% PC = 100%		-0.30	[-1.22, 0.63]
Year Two			
% PC < 70%	15,802	-0.27	[-2.28, 1.74]
70% ≤ % PC < 100%		0.17	[-1.06, 1.40]
% PC = 100%		0.11	[-0.67, 0.88]
Year Three			
% PC < 70%	4,962	6.87	[-4.18, 17.91]
70% ≤ % PC < 100%		-4.08	[-10.41, 2.26]
% PC = 100%		-2.79	[-7.50, 1.92]
Overall			
% PC < 70%	28,880	1.07	[-0.03, 2.17]
70% ≤ % PC < 100%		-0.64	[-1.29, 0.01]
% PC = 100%		-0.43	[-0.88, 0.03]

(continued)

Table 8-25 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

	Adults		
	N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval
30-day unplanned readmissions			
Year One	2,798	0.55	[-2.03, 3.13]
Year Two	5,769	-0.90	[-2.99, 1.18]
Year Three	7,141	-0.07	[-1.98, 1.84]
Overall	12,415	-0.28	[-1.91, 1.35]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70% of visits in primary care settings, at least 70% but fewer than 100% of visits in primary care settings, or exactly 100% of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Turning to Medicaid beneficiaries with multiple chronic conditions, we found some evidence that the HCH initiative improved access to care, but not care coordination. Specifically, **Table 8-25** shows the following:

- The *overall* likelihood of having **primary care visits** increased among HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for the measures of medical specialist and surgical specialist visits, primary care visits as a percentage of total visits, and 30-day unplanned readmissions.

The HCH initiative was expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the HCH initiative and one CG: non-PCMH practices (limited to beneficiaries with multiple chronic conditions).

- **Table 8-26** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 8-27** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 8-28** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 8.6.2** for further discussion of the interpretation of these measures.

Table 8-26
Minnesota: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Total Medicare		
Year One (N = 15,241)	206.77*	[71.71, 341.84]
Year Two (N = 22,864)	19.41	[-112.45, 151.27]
Year Three (N = 24,972)	325.51*	[220.63, 430.39]
Overall (N = 31,924)	197.75*	[103.61, 291.89]
Overall Aggregate	\$109,768,013*	
Acute care		
Year One (N = 15,241)	84.18*	[21.78, 146.58]
Year Two (N = 22,864)	7.95	[-57.74, 73.65]
Year Three (N = 24,972)	114.88*	[43.56, 186.21]
Overall (N = 31,924)	72.56*	[19.46, 125.65]
Overall Aggregate	\$40,275,094*	
Post-acute care		
Year One (N = 15,241)	34.50	[-14.91, 83.91]
Year Two (N = 22,864)	-2.78	[-48.54, 42.98]
Year Three (N = 24,972)	54.92*	[23.60, 86.24]
Overall (N = 31,924)	31.25	[-0.59, 63.10]
Overall Aggregate	\$17,348,952	

(continued)

Table 8-26 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
ER visits not leading to hospitalization		
Year One (N = 15,241)	11.63*	[7.02, 16.24]
Year Two (N = 22,864)	3.41	[-1.65, 8.47]
Year Three (N = 24,972)	17.93*	[11.23, 24.63]
Overall (N = 31,924)	11.73*	[6.66, 16.79]
Overall Aggregate	\$6,509,460*	
Outpatient		
Year One (N = 15,241)	45.61*	[15.86, 75.36]
Year Two (N = 22,864)	30.01	[-0.06, 60.09]
Year Three (N = 24,972)	37.39*	[8.23, 66.54]
Overall (N = 31,924)	36.68*	[10.62, 62.74]
Overall Aggregate	\$20,359,945*	
Specialty physician		
Year One (N = 15,241)	-14.14	[-33.22, 4.93]
Year Two (N = 22,864)	-27.45*	[-44.99, -9.92]
Year Three (N = 24,972)	16.35*	[3.41, 29.29]
Overall (N = 31,924)	-4.82	[-17.23, 7.59]
Overall Aggregate	-\$2,674,175	
Primary care physician		
Year One (N = 15,241)	5.76	[-2.25, 13.77]
Year Two (N = 22,864)	-6.03	[-13.83, 1.78]
Year Three (N = 24,972)	3.99	[-6.64, 14.62]
Overall (N = 31,924)	1.02	[-7.53, 9.57]
Overall Aggregate	\$565,633	
Home health		
Year One (N = 15,241)	19.65*	[8.67, 30.64]
Year Two (N = 22,864)	9.76	[-0.54, 20.07]
Year Three (N = 24,972)	27.86*	[18.22, 37.50]
Overall (N = 31,924)	20.05*	[12.18, 27.92]
Overall Aggregate	\$11,130,813*	
Other non-facility		
Year One (N = 15,241)	2.53	[-0.47, 5.54]
Year Two (N = 22,864)	-0.34	[-4.03, 3.34]
Year Three (N = 24,972)	7.81*	[3.15, 12.47]
Overall (N = 31,924)	3.96*	[0.89, 7.02]
Overall Aggregate	\$2,195,900*	
Laboratory		
Year One (N = 15,241)	3.55*	[1.69, 5.41]
Year Two (N = 22,864)	0.09	[-1.81, 1.99]
Year Three (N = 24,972)	1.50	[-0.19, 3.18]
Overall (N = 31,924)	1.47*	[0.07, 2.86]
Overall Aggregate	\$813,864*	

(continued)

Table 8-26 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Imaging		
Year One (N = 15,241)	1.77	[-0.72, 4.26]
Year Two (N = 22,864)	-1.60	[-4.15, 0.94]
Year Three (N = 24,972)	-1.24	[-3.10, 0.63]
Overall (N = 31,924)	-0.72	[-2.25, 0.82]
Overall Aggregate	-\$397,428	
Other facility		
Year One (N = 15,241)	-0.40	[-4.97, 4.16]
Year Two (N = 22,864)	-2.20	[-6.43, 2.03]
Year Three (N = 24,972)	0.89	[-0.91, 2.68]
Overall (N = 31,924)	-0.42	[-3.31, 2.47]
Overall Aggregate	-\$233,722	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence of greater expenditure growth in many of the expenditure categories, including total Medicare expenditures, for the HCH initiative beneficiaries. The increase in total Medicare expenditures may have been driven by increases in expenditure growth in several areas, including acute-care ER visits not leading to hospitalization, and outpatient expenditures. Specifically, **Table 8-26** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate total Medicare expenditures* was \$109.8 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **acute-care expenditures** was \$40.3 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **expenditures for ER visits not leading to a hospitalization** was \$6.5 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **outpatient expenditures** was \$20.4 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **home health expenditures** was \$11.1 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **other non-facility expenditures** was \$2.2 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **laboratory expenditures** was \$0.8 million greater for HCH initiative beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for post-acute care, specialty physician, primary care physician, imaging, and other facility expenditures.

Table 8-27
Minnesota: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
All-cause admissions		
Year One (N = 15,241)	19.32*	[7.79, 30.84]
Year Two (N = 22,864)	0.46	[-11.43, 12.35]
Year Three (N = 24,972)	29.98*	[14.76, 45.19]
Overall (N = 31,924)	17.83*	[6.66, 28.99]
Overall Aggregate	3,299*	
ER visits not leading to hospitalization		
Year One (N = 15,241)	24.98*	[10.60, 39.37]
Year Two (N = 22,864)	8.05	[-6.70, 22.79]
Year Three (N = 24,972)	32.13*	[11.74, 52.53]
Overall (N = 31,924)	22.55*	[7.68, 37.42]
Overall Aggregate	4,172*	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that the HCH initiative increased utilization. Specifically, **Table 8-27** shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 3,299 among Medicare beneficiaries assigned to the HCH initiative compared with beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 4,172 among Medicare beneficiaries assigned to the HCH initiative compared with beneficiaries assigned to non-PCMH practices.

Table 8-28
Minnesota: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicaid beneficiaries with multiple chronic conditions:
Thirteen quarters of the MAPCP Demonstration

	Adults		
	N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval
All-cause admissions			
Year One	22,418	1.79*	[1.17, 2.40]
Year Two	35,171	0.85*	[0.28, 1.42]
Year Three	45,671	-0.62*	[-1.06, -0.18]
Overall	53,095	0.23 784	[-0.21, 0.68]
ER visits not leading to hospitalization			
Year One	22,418	0.51	[-0.84, 1.86]
Year Two	35,171	-0.43	[-1.77, 0.91]
Year Three	45,671	-2.01*	[-3.21, -0.81]
Overall	53,095	-1.23* -4,131*	[-2.29, -0.18]

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Minnesota HCH initiative participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found a reduction in ER visits not leading to hospitalization. Specifically, **Table 8-28** shows the following:

- The *overall aggregate* number of **ER visits not leading to hospitalization** decreased by 4,131 among Medicaid adult beneficiaries assigned to the HCH initiative compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for all-cause admissions.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders often have substantial unmet needs for health care. Within the medical home, significant care management and coordination resources may be required to meet the needs of these patients. The HCH initiative's payment model provided enhanced reimbursement for each patient with severe and persistent mental illness treated by an HCH. Like other beneficiaries of HCHs, individuals with behavioral health conditions were expected to benefit from initiatives to improve access to, coordination of, and continuity of care with primary care and other providers, including behavioral health care providers. The HCH initiative was expected to improve care coordination for beneficiaries, which could, in turn, result in more appropriate use of outpatient care and reduce inpatient care and ER visits. Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim and two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the demonstration. Using this criterion, 18 percent of the Medicare study sample (including both demonstration and CG beneficiaries), 4 percent of the adult Medicaid study sample, and 1 percent of the pediatric Medicaid study sample were identified as having a behavioral health condition.

- **Table 8-29** reports on changes in total Medicare expenditures, expenditures for acute-care hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 8-30** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with a principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 8-31** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with a principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 8.6.2** for further discussion of the interpretation of these measures.

Table 8-29
Minnesota: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Total Medicare		
Year One (N = 13,458)	40.55	[-48.89, 130.00]
Year Two (N = 20,814)	-3.43	[-85.73, 78.88]
Year Three (N = 22,453)	180.97*	[95.58, 266.36]
Overall (N = 28,615)	88.48*	[15.63, 161.33]
Overall Aggregate	\$43,899,488*	
Acute-care		
Year One (N = 13,458)	10.04	[-32.75, 52.84]
Year Two (N = 20,814)	-16.02	[-59.35, 27.30]
Year Three (N = 22,453)	45.68	[-14.90, 106.26]
Overall (N = 28,615)	17.15	[-24.32, 58.61]
Overall Aggregate	\$8,507,882	
ER visits not leading to hospitalization		
Year One (N = 13,458)	2.15	[-3.01, 7.30]
Year Two (N = 20,814)	1.49	[-2.79, 5.77]
Year Three (N = 22,453)	11.46*	[5.28, 17.64]
Overall (N = 28,615)	6.09*	[1.79, 10.40]
Overall Aggregate	\$3,023,138*	
Total for services with a principal diagnosis of a behavioral health condition		
Year One (N = 13,458)	15.37*	[7.19, 23.54]
Year Two (N = 20,814)	17.37*	[9.89, 24.84]
Year Three (N = 22,453)	10.63	[-1.16, 22.42]
Overall (N = 28,615)	13.93*	[6.82, 21.03]
Overall Aggregate	\$6,909,327*	

(continued)

Table 8-29 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Total for services with a secondary diagnosis of a behavioral health condition		
Year One (N = 13,458)	38.88*	[6.49, 71.28]
Year Two (N = 20,814)	18.46	[-14.33, 51.25]
Year Three (N = 22,453)	51.78	[-0.55, 104.11]
Overall (N = 28,615)	37.72*	[3.58, 71.87]
Overall Aggregate	\$18,717,884*	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A negative value corresponds to lower growth in expenditures compared with the CG. A positive value corresponds to greater growth compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found increased total Medicare spending for beneficiaries assigned to HCH practices. Specifically, **Table 8-29** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate total Medicare expenditures* was \$43.9 million greater for beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate expenditures for ER visits not leading to hospitalization* was \$3.0 million greater for beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.

- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate expenditures for total services with a principal diagnosis of a behavioral health condition* was \$6.9 million greater for beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate expenditures for total services with a secondary diagnosis of a behavioral health condition* was \$18.7 million greater for beneficiaries assigned to HCH practices compared with similar beneficiaries in non-PCMH practices.

No statistically significant *overall* impacts of the HCH initiative were observed for acute-care expenditures among Medicare beneficiaries with behavioral health conditions.

Table 8-30
Minnesota: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
All-cause inpatient admissions		
Year One (N = 13,458)	-6.19	[-17.25, 4.87]
Year Two (N = 20,814)	-7.15	[-19.97, 5.67]
Year Three (N = 22,453)	6.25	[-5.84, 18.33]
Overall (N = 28,615)	-0.95	[-12.03, 10.13]
Overall Aggregate	-157	
ER visits not leading to hospitalization		
Year One (N = 13,458)	-6.93	[-30.92, 17.06]
Year Two (N = 20,814)	3.86	[-19.88, 27.60]
Year Three (N = 22,453)	24.07*	[1.27, 46.87]
Overall (N = 28,615)	10.61	[-8.16, 29.38]
Overall Aggregate	1,755	
Behavioral health inpatient admissions		
Year One (N = 13,458)	2.34	[-0.36, 5.05]
Year Two (N = 20,814)	2.49*	[0.02, 4.97]
Year Three (N = 22,453)	0.16	[-3.46, 3.79]
Overall (N = 28,615)	1.42	[-0.70, 3.54]
Overall Aggregate	235	
Behavioral health ER visits		
Year One (N = 13,458)	2.38	[-1.12, 5.87]
Year Two (N = 20,814)	3.07	[-0.42, 6.57]
Year Three (N = 22,453)	6.91*	[3.04, 10.79]
Overall (N = 28,615)	4.64*	[1.71, 7.58]
Overall Aggregate	768*	

(continued)

Table 8-30 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	HCH practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval
Behavioral health outpatient visits		
Year One (N = 13,458)	1.92	[-25.05, 28.89]
Year Two (N = 20,814)	52.03*	[3.80, 100.26]
Year Three (N = 22,453)	50.96	[-7.04, 108.97]
Overall (N = 28,615)	40.89	[-3.91, 85.69]
Overall Aggregate	6,762	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique HCH participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, **Table 8-30** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, **behavioral health ER visits** increased by an overall aggregate of 768 visits among Medicare beneficiaries assigned to HCH practices compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts of the HCH initiative were observed among Medicare beneficiaries with behavioral health conditions for the measures of all-cause inpatient admissions, ER visits not leading to a hospitalization, behavioral health inpatient admissions, and behavioral health outpatient visits.

Table 8-31
Minnesota: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Thirteen quarters of the MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
All-cause inpatient admissions						
Year One	1,929	0.60	[-0.33, 1.53]	5,379	4.34*	[2.37, 6.32]
Year Two	2,554	0.25	[-0.68, 1.17]	7,803	1.93*	[0.27, 3.58]
Year Three	3,355	-1.14*	[-2.18, -0.10]	10,628	-0.56	[-2.38, 1.27]
Overall	4,007	-0.56	[-1.34, 0.22]	13,008	0.91	[-0.80, 2.63]
Overall Aggregate		-149			691	
ER visits not leading to hospitalization						
Year One	1,929	1.77	[-0.23, 3.78]	5,379	3.27*	[0.58, 5.95]
Year Two	2,554	2.67*	[0.69, 4.65]	7,803	1.82	[-0.70, 4.35]
Year Three	3,355	0.31	[-1.47, 2.09]	10,628	0.25	[-2.10, 2.59]
Overall	4,007	1.07	[-0.45, 2.59]	13,008	1.14	[-1.12, 3.40]
Overall Aggregate		285			862	
Behavioral health inpatient admissions						
Year One	1,420	-0.11	[-0.84, 0.61]	2,892	2.98*	[0.59, 5.36]
Year Two	1,847	0.38	[-0.51, 1.26]	3,749	0.70	[-1.33, 2.73]
Year Three	2,355	-0.59	[-1.65, 0.48]	4,834	-0.69	[-2.93, 1.55]
Overall	3,151	-0.61	[-1.51, 0.29]	7,789	0.41	[-1.69, 2.51]
Overall Aggregate		-162			309	

(continued)

Table 8-31 (continued)
Minnesota: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Thirteen quarters of MAPCP Demonstration

	Children			Adults		
	N	HCH vs. CG non-PCMHs		N	HCH vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Behavioral health ER visits						
Year One	1,420	0.63	[-0.37, 1.64]	2,892	0.95	[-1.45, 3.36]
Year Two	1,847	0.51	[-0.59, 1.61]	3,749	-0.78	[-3.18, 1.62]
Year Three	2,355	-0.19	[-1.48, 1.10]	4,834	-1.50	[-3.77, 0.78]
Overall	3,151	0.17	[-0.91, 1.24]	7,789	-0.77	[-2.88, 1.34]
Overall Aggregate		44			-580	
Behavioral health outpatient visits						
Year One	1,420	12.55*	[8.18, 16.92]	2,892	4.44*	[0.68, 8.20]
Year Two	1,847	5.13*	[0.96, 9.31]	3,749	1.95	[-2.49, 6.38]
Year Three	2,355	-3.02	[-7.30, 1.26]	4,834	-5.16*	[-9.77, -0.56]
Overall	3,151	4.00*	[0.48, 7.51]	7,789	-0.75	[-4.92, 3.42]
Overall Aggregate		1,065*			-569	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Minnesota HCH initiative participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. The demonstration period for this report includes 13 quarters, and quarter 13 is included in the Overall estimate. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; HCH = Health Care Homes; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult and child Medicaid beneficiaries with behavioral health conditions, *Table 8-31* shows the following:

- Among Medicaid children with behavioral health conditions assigned to HCH practices, the overall aggregate number of beneficiaries with a **behavioral health outpatient visit** increased by 1,065 compared with similar beneficiaries in non-PCMH practices.

No statistically significant overall results were observed among Medicaid children with behavioral health conditions assigned to HCH practices for the likelihood of all-cause inpatient admissions, ER visits not leading to hospitalization, behavioral health inpatient admissions, or behavioral health ER visits, compared with similar beneficiaries assigned to non-PCMH practices. No statistically significant overall results were observed among Medicaid adults with behavioral health conditions assigned to HCH practices for the likelihood of all-cause inpatient admissions, ER visits not leading to hospitalization, behavioral health inpatient admissions, behavioral health ER visits, or behavioral health outpatient visits compared with similar beneficiaries assigned to non-PCMH practices.

8.7.4 Discussion of Special Populations

Consistent with the trend observed for Medicare FFS beneficiaries more broadly in Minnesota, Medicare beneficiaries with multiple chronic conditions and those with behavioral health conditions both generated more expenditures over the course of the demonstration if they were seen by a HCH practice than if they were treated by a non-PCMH comparison practice. For beneficiaries with multiple chronic conditions, the added expenditures were largely driven by spending on acute care, outpatient care, and home health services. Meanwhile, added expenditures for beneficiaries with behavioral health conditions were largely driven by spending on services with a principal or secondary diagnosis of a behavioral health condition.

These are particularly interesting findings, because the state's HCH payment model incentivized HCH practices to increase their focus on patients with multiple chronic conditions and patients with serious and persistent mental illnesses, while not providing any new incentives to target the other special populations we examined in *Table 8-20*. Our findings suggest that primary care practices responded to the new financial incentives presented to them through the HCH initiative payment model in Minnesota, by providing or helping to secure additional services for these two targeted patient subgroups—not necessarily producing near-term savings but perhaps addressing unmet medical needs or making investments in these patients' health that may pay future dividends.

Turning from expenditures to utilization, we found that Medicare beneficiaries with multiple chronic conditions who were seen by a demonstration practice had an increased rate of PQI admissions, all-cause hospital admissions, and ER visits, relative to beneficiaries seen by non-PCMH comparison practices—trends the state was not expecting to see. On a more positive note, these beneficiaries also had more primary care visits and specialist visits—trends the state had expected to see. Meanwhile, beneficiaries with behavioral health conditions had an increased rate of behavioral health-related ER visits.

The conclusion from these findings is that Medicare beneficiaries with greater health needs received more of a lot of types of care during the HCH initiative if they were cared for by a demonstration practice. For beneficiaries with behavioral health conditions, added spending is perhaps to be expected, given practices' new incentives to identify and offer treatment to patients with such conditions—although the increase in ER visits is not what we would have expected, given the enhanced care management offered by practices. For beneficiaries with multiple chronic conditions, it is harder to identify a possible explanation for the trends we observed, which run counter to the state's expectations for this group. Comparison practices in Minnesota appear to be doing a better job at managing the care of this set of patients.

As with several other trends reported in this chapter, we find a completely different—and much more encouraging—result when looking at Medicaid beneficiaries. Medicaid beneficiaries with multiple chronic conditions had a decreased likelihood of ER visits and an increased rate of primary care visits if they were cared for by a demonstration practice as opposed to a non-PCMH comparison practice—both trends the state had hoped to observe. These beneficiaries were also more likely to have received a host of recommended services captured by our process-of-care quality measures—consistent with the results observed for Medicaid beneficiaries more generally earlier in this chapter. For Medicaid beneficiaries with behavioral health conditions, we observed a higher rate of behavioral health outpatient visits for children—perhaps suggesting that previously unmet needs for treatment were now being addressed.

We offer possible explanations for the broad trends observed among Medicare and Medicaid patients in the next section.

8.8 Discussion of Minnesota's MAPCP Demonstration

The MAPCP Demonstration had very different impacts on Medicare and Medicaid beneficiaries in Minnesota. Among Medicare FFS beneficiaries, being cared for by a demonstration practice as opposed to one in the CG was associated with no change in most of our quality and utilization metrics, and an increase in total Medicare spending. Among Medicaid beneficiaries, being cared for by a demonstration practice yielded better outcomes—resulting in a greater likelihood of receiving a range of recommended services, and more primary care and specialist visits—although many key outcome measures remained unaffected by the demonstration, and the rate of all-cause hospital admissions among Medicaid adults was actually higher in HCH practices than in non-PCMH comparison practices. (We were unable to estimate Medicaid expenditures because Minnesota did not provide expenditure data for Medicaid managed care encounters, which represent the majority of Medicaid claims in that state.)

Our overall finding that the MAPCP Demonstration had a more positive impact on Medicaid than Medicare patients may be driven by differences between MAPCP Demonstration and comparison practices in their baseline spending and utilization for these two sets of patients (data not shown). Looking at Medicare beneficiaries, our comparison practices had higher rates of spending, avoidable catastrophic events, preventable hospital admissions, as well as lower quality measure performance than demonstration practices before the demonstration began. This meant that comparison practices had more room to improve care and lower spending, and MAPCP Demonstration practices had a harder task ahead of them because they were already superior performers. The reverse appears to have been true of Medicaid beneficiaries served by

these same two sets of practices: MAPCP Demonstration practices were not performing as well as comparison practices on various Medicaid quality and utilization metrics at baseline, and thus could have had an easier time improving over the course of the demonstration.

Another possible explanation for our findings is that different interventions and approaches may have been used to manage the care of Medicaid patients versus Medicare patients, and practices may not have consistently focused on either one of these populations throughout the entire demonstration period. Instead, it could be that practices first focused on Medicaid beneficiaries (as evidenced by the increase in their primary care and specialty visits in the first year of the demonstration), because they had spending that was higher than the national average at the start of the demonstration (at \$8,057, compared with \$6,502 nationally)¹³ and thus may have suggested to practices that there was room for improvement in their management of these patients' care. In later years, it could be that HCH practices shifted their focus to Medicare beneficiaries with multiple chronic conditions (as suggested by their increased receipt of primary care and specialty visits in the third year of the demonstration), after an HCH toolkit for coordinating care for Medicare patients was released and promoted through trainings. The net effect of focusing on one set of patients and then diverting resources to another set of patients—if that is indeed what occurred—would have been to weaken the impacts on any one set of patients. A variation on this theory is that early adopters of the HCH model may have consistently focused more on managing the care of Medicaid patients, whereas later adopters of the HCH model may have consistently focused more on managing the care of Medicare patients.

We also note that the lack of favorable results on many key utilization and spending metrics in Minnesota may be explained, in part, by the state's decision to allow practices to join the demonstration on a rolling basis and by practices focusing HCH services on patients with the greatest needs. Allowing for rolling entrants created a heterogeneous mix of practices with varying HCH maturity and experience levels. It is possible that favorable impacts produced by early adopters of the HCH model were offset by less favorable impacts among practices that joined the HCH initiative later—effectively pulling average impacts down. In addition, focusing on high-need patients may have meant that utilization patterns did not change for enough of these patients to produce discernible changes, on average, in many of the metrics we tracked.

¹³ <http://kff.org/medicaid/state-indicator/medicaid-spending-per-full-benefit-enrollee/?currentTimeframe=0&sortModel=%7B%22collId%22:%22Total%22,%22sort%22:%22desc%22%7D>

CHAPTER 9 MAINE

Overview of Maine Evaluation Results

Maine's Patient-Centered Medical Home (PCMH) Pilot began in 2010 with 22 adult and four pediatric practices and the participation of Medicaid and three major private health insurers. Through the MAPCP Demonstration, Medicare joined the Maine PCMH Pilot as a payer on January 1, 2012, for the 22 participating adult practices. Eight community care teams (CCTs) were brought on board to provide care management support to participating practices' most complex patients. Participating practices and CCTs received care management fees from Medicare and other participating payers, along with data and technical assistance. In January 2013, the Maine PCMH Pilot grew significantly, adding 50 practices and two CCTs.

Below are some of the key findings from the MAPCP Demonstration in Maine:

- Approximately 60,000 Medicare beneficiaries, 73,000 Medicaid beneficiaries, 508 providers, and 70 practices participated.
- CMS paid out more than \$12 million in care management fees to practices and CCTs over the course of the demonstration to support the infrastructure and services provided as part of the initiative.
- During 12 quarters of the MAPCP Demonstration and after accounting for the demonstration fees paid by Medicare, the MAPCP Demonstration in Maine resulted in Medicare losses between \$65 million and \$84 million. Reasons for these losses include practice transformation activities that also may have been under way in comparison group (CG) practices, a high average CCT service refusal rate of 42 percent to 47 percent, and CCTs not consistently targeting the top 5 percent of beneficiaries with high risk/high utilization.
- The Maine PCMH Pilot resulted in no significant changes in Medicaid expenditures relative to the CGs. However, expenditures over time were trending in a favorable direction.
- There was little evidence of favorable impacts on utilization for either Medicare or Medicaid beneficiaries. In fact, there was some suggestion of increased rates of inpatient admissions for Medicare beneficiaries relative to the CG, and an increase in the likelihood of emergency room (ER) visits for children enrolled in Medicaid.
- There was little evidence of improvement in quality of care and health outcomes for Medicare and Medicaid beneficiaries. In fact, some results suggested that the Maine PCMH Pilot was actually associated with higher rates of preventable hospitalizations for chronic conditions and lower likelihood of receiving evidence-based care (e.g., receipt of an HbA1c test among Medicare beneficiaries), although the magnitudes of these changes were small.

- Despite little evidence of improvement in other areas, practices' efforts to improve access to care through open-access scheduling, expanded hours, and online patient portals proved fruitful. The vast majority of beneficiaries said that they had timely access to urgent and routine care. Also, beneficiaries indicated high levels of satisfaction with the quality of communication between patients and providers, noting that providers often encouraged self-management of their health through referrals to smoking cessation, stress management, and weight management programs and referrals to specialists when needed.
- Perhaps the most significant advance in care coordination was the integration of behavioral health care within primary care practices. By the end of the Maine PCMH Pilot, 81 percent of practices in Maine reported consistently referring patients in need of behavioral health support or community-based services to partners. However, practices described challenges encountered with this integration and the amount of work required, suggesting that full integration of primary and behavioral health care was not realized by the end of the demonstration period.
- Practices had favorable views of the CCTs, stating that they enhanced the level of care for high-risk, high-need patients by facilitating access to other medical and nonmedical services.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to the Maine PCMH Pilot, Maine's multi-payer initiative, which added Medicare as a payer in 2012 to implement the MAPCP Demonstration. We report findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Maine in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2012 through 2014; and
- secondary data and documents such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from the Maine PCMH Pilot practices more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the CAHPS PCMH survey among Medicare FFS beneficiaries. Ten focus groups were held in Maine in Augusta and Portland in October 2014. At

each site, separate groups were held for each of the following: Medicare low risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Groups ranged in size from four to eight participants, for a total of 64 participants. See *Appendix O* for more details about focus group participant characteristics.

The Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to demonstration practices in Maine during Quarter 7. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In Maine, a 46.2 percent response rate was achieved with a total of 643 completed surveys, both of which exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we fielded an online survey among 69 practices participating in the MAPCP Demonstration. Ninety providers from 48 of the 69 Maine practices completed our survey.

This chapter is organized by major evaluation domains. *Section 9.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in the Maine PCMH Pilot. *Section 9.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (*Section 9.3*); access to care and coordination of care (*Section 9.4*); beneficiary experience with care (*Section 9.5*); effectiveness as measured by health care utilization and expenditures (*Section 9.6*); and special populations (*Section 9.7*). The chapter concludes with a discussion of the findings (*Section 9.8*).

9.1 State Implementation

In this section, we present findings related to the implementation of the Maine PCMH Pilot and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the Maine PCMH Pilot?
- Were any major implementation issues encountered during the evaluation period, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in *Section 9.1.1*, which describes the major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by the Maine PCMH Pilot; monthly calls between Maine PCMH Pilot staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. *Section 9.1.2* presents a logic model that

reflects our understanding of the link between specific elements of the Maine PCMH Pilot and expected changes in outcomes. **Section 9.1.3** presents key findings gathered from the site visits and other sources regarding the implementation experience of state officials, payers, and providers during the evaluation period. **Section 9.1.4** concludes the State Implementation section with lessons learned.

9.1.1 Maine State Profile as of December 2014

The Maine PCMH Pilot began in 2008 following the recommendations of a bipartisan legislative Commission to Study Primary Care Medical Practice. The Maine PCMH Pilot was intended to transform Maine's primary care delivery system to one that is patient centered, effective, efficient, and accessible.

Three organizations launched the Maine PCMH Pilot: Maine Quality Forum, Maine Quality Counts (a nonprofit collaborative of insurers, providers, and others), and the Maine Health Management Coalition (a nonprofit employer and union-led coalition).¹ In 2009, after securing the participation of the state Medicaid program, 22 adult and four pediatric practices were chosen to participate in the Maine PCMH Pilot. On January 1, 2010, the Maine PCMH Pilot began with the participation of Medicaid (called MaineCare) and three major private health insurers (Anthem Blue Cross Blue Shield [BCBS], Harvard Pilgrim, and Aetna). Despite a change in governor, support for the Maine PCMH Pilot continued with an additional appropriation for Medicaid payments in the 2011 state budget. Additional financial support for implementation of the Maine PCMH Pilot came from the Dirigo Health Agency, the Maine Health Access Foundation, and other private foundations.

Medicare began participating as a payer in the Maine PCMH Pilot on January 1, 2012, for the 22 participating adult practices. In January 2013, the Maine PCMH Pilot grew significantly with a Phase 2 expansion, adding 50 practices and two additional CCTs. The Maine PCMH Pilot was planned to terminate on December 31, 2014; however, all participating payers, including Medicare, agreed to extend the demonstration in Maine through December 31, 2016.

State environment. Health care in Maine was organized primarily as a FFS system across public and private payers. As of 2012, a small percentage (16%) of Medicare beneficiaries were participating in Medicare Advantage plans. Major private insurers in the state were Anthem BCBS, Aetna, Cigna, Harvard Pilgrim, and Maine Community Health Options, a consumer-operated and -oriented plan funded through the Affordable Care Act (ACA). All but Cigna participated in the Maine PCMH Pilot. The insurers participated on behalf of their commercial lines of business only. A proportion of self-insured purchasers in the state voluntarily participated in the Maine PCMH Pilot.

¹ The three PCMH conveners also participated in Aligning Forces for Quality, the initiative funded by the Robert Wood Johnson Foundation to encourage public reporting of quality data and provide quality improvement assistance.

MaineCare operated statewide as a primary care case management (PCCM) program. The Maine legislature approved cuts in Medicaid in the 2011–2012 legislative session, resulting in reduced benefits for approximately 8,000 beneficiaries in the Medicare Savings Program² and loss of coverage for approximately 12,600 parents with incomes from 133 percent to 200 percent of the federal poverty level (FPL), as of March 2013. These cuts also resulted in the defunding of the Dirigo Health Agency at the end of 2013. Despite being defunded, the Dirigo Health Agency still housed the Maine Quality Forum, one of the Maine PCMH Pilot’s three conveners, and this became its sole function.

Maine had several other initiatives across the state operating concurrently with the Maine PCMH Pilot that may have influenced health outcomes for participants in the Maine PCMH Pilot or CG populations:

- HealthInfoNet was the nonprofit organization operating the state’s health information exchange (HIE) and serving as the Maine Regional Extension Center (REC). Many PCMHs were part of the systems connected to the HIE. HealthInfoNet used additional funding, available through Health Information Technology for Economic and Clinical Health (HITECH) and other sources, to increase connectivity with Maine’s other providers. Such efforts included assisting practices with implementation of electronic health record (EHR) systems. By December 2014, 34 of Maine’s 38 hospitals and many ambulatory care sites were connected to HealthInfoNet.
- A Section 2703 Health Home State Plan Amendment (SPA) was approved by CMS in 2013 for Medicaid beneficiaries with chronic conditions. The SPA aligned Maine’s Medicaid Health Home criteria with the Maine PCMH Pilot. The Maine PCMH Pilot’s 10 Core Expectations (described in the Practice Expectations section) were used as qualification criteria for participation in the MaineCare Health Homes initiative. Payments to PCMH practices on behalf of participating Medicaid beneficiaries were the result of this Section 2703 Home Health SPA. Maine Quality Counts and MaineCare collaborated to produce a unified application and selection process for Phase 2 expansion PCMHs and for MaineCare Health Homes. The Maine Quality Counts management team made a site visit to each practice that applied to assess its progress in meeting the Core Expectations. Practices that were further along were selected for participation in the expansion of the Maine PCMH Pilot; these practices were paid, however, using the Health Homes reimbursement structure. The remaining approved practices became Health Homes.³ Practices that participated in Maine’s Health Home initiative for beneficiaries with chronic conditions were required to partner with a CCT to provide care coordination and additional wrap-around services. Another Health Home SPA was approved in 2014 for adult Medicaid beneficiaries with serious mental illness (SMI) and children with serious emotional disturbance (SED). Practices that participated in the Health Home initiative for beneficiaries with SMI or SED were required to partner with a licensed community

² The Medicare Savings Program helps low-income Medicare beneficiaries pay for some or all of their Medicare premiums, coinsurance, and deductibles.

³ In Phase A of the state’s Health Homes initiative, Health Homes were defined as a PCMH paired with a CCT.

mental health provider, called a Behavioral Health Home Organization (BHHO), rather than a CCT.

- Maine received a State Innovation Model (SIM) Initiative Model Testing award in 2013. Maine Quality Counts was one of the state’s three named partners and provided transformation support to more than 80 “Health Home Only” practices—practices that did not participate in the Maine PCMH Pilot, but were funded under the Section 2703 initiative—under an extension of the contract to provide technical assistance to PCMH practices. The Maine Health Management Coalition provided a range of data analytic, design, and technical support for the testing strategy. HealthInfoNet provided ER notifications to CCTs, captured Health Homes’ clinical outcomes from EHRs, developed a behavioral health EHR incentive program, and created a patient personal health record.
- The Maine Health Management Coalition, one of the three Maine PCMH Pilot conveners, encouraged health plan participation in the Maine PCMH Pilot and supported data collection and reporting efforts. In 2014, the organization began producing reports for all primary care practices in the state, including Maine PCMH Pilot practices, based on commercial cost and utilization data. Each report contained a total cost of care index, a resource use index, and data on the aspects of care that were accruing costs, such as pharmaceutical utilization and inpatient admissions.

Demonstration scope. In 2012, the Maine PCMH Pilot began payments to 22 adult practices located throughout the state, with an expectation that each practice would provide high-quality, patient-centered, coordinated, and accessible care. Pilot conveners decided to terminate the participation of one Phase 1 practice on September 30, 2012, after being notified that the practice would close by December 2012. In January 2013, 50 additional adult practices joined the Maine PCMH Pilot as part of the Phase 2 Maine PCMH Pilot expansion.

Table 9-1 shows participation in the Maine PCMH Pilot at the end of Years One, Two, and Three of the MAPCP Demonstration.⁴ Between the end of Year One to the end of Year Three, participating practices with attributed Medicare FFS beneficiaries increased by 233 percent, from 21 to 70 practices. Originally, the state hoped to have 42 practices recognized as National Committee for Quality Assurance (NCQA) Physician Practice Connection Patient-Centered Medical Home (PPC®-PCMH™) and participating in the Maine PCMH Pilot, so having 70 at the end of Year Three far exceeded the state’s original projections. Participating all-payer practices increased from none in Year One to 74 by the end of Year Three, with 535 participating all-payer providers. The number of providers in these practices increased by 154 percent over this period, from 200 to 508.

⁴ The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a Maine PCMH Pilot practice and participated in the Maine PCMH Pilot for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent to treat design of our evaluation. The number of all payer participants also represent the number of individuals who were ever attributed to a Maine PCMH Pilot practice.

The state originally projected that 260,000 individuals would participate in the Maine PCMH Pilot across all payers by the end of Year Three of the MAPCP Demonstration. The number of all-payer participants increased by 104 percent over the course of the demonstration but still fell short of the projected participation target by 119,918 individuals, or 54 percent. The cumulative number of Medicare FFS beneficiaries who had ever participated in the Maine PCMH Pilot for 3 or more months increased 176 percent, from 21,561 to 59,523. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, but the cumulative number of Medicaid beneficiaries who ever participated for 3 or more months increased by 132 percent, from 31,683 to 73,124, over the course of the demonstration.

Six payers participated in the Maine PCMH Pilot. As of December 31, 2014, Medicare FFS covered 32.5 percent of total patients in the demonstration, whereas MaineCare covered 19 percent, Aetna covered 14.5 percent, Anthem BCBS covered 16 percent, Harvard Pilgrim covered 8 percent, and Maine Community Health Options covered 10 percent.

Table 9-1
Maine: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants participating in the Maine PCMH Pilot

Participating entities	Number as of December 31, 2012	Number as of December 31, 2013	Number as of December 31, 2014
Medicare			
Maine PCMH Pilot practices ¹	21	71	70
Participating providers ¹	200	482	508
Medicare FFS beneficiaries ²	21,561	52,489	59,524
Medicaid			
Maine PCMH Pilot practices ³	24	68	68
Medicaid beneficiaries ³	31,683	60,833	73,124
All-payer			
Maine PCMH Pilot practices ⁴	—	75	74
Participating providers ⁴	—	539	535
All-payer participants ⁴	68,627	125,232	140,082

NOTES:

- For Medicare, Maine PCMH Pilot practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating Maine PCMH Pilot practices and participated in the demonstration for at least 3 months. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- For Medicaid, Maine PCMH Pilot practices include only those practices with attributed Medicaid beneficiaries.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating Maine PCMH Pilot practices and participated in the demonstration for at least 3 months.
- The all-payer numbers are derived from the state using its own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; — = data not available.

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³Maine Medicaid enrollment and claims files (see Chapter 1 for more detail about these files); ⁴Maine Quarterly Reports to CMS.

Table 9-2 displays the characteristics of the practices that participated in the Maine PCMH Pilot as of the end of Year Three. There were 70 participating practices, with an average of seven providers per practice. More than half were office-based practices (57%), 19 percent were federally qualified health centers (FQHCs), 13 percent were critical access hospitals (CAHs), and 11 percent were rural health clinics (RHCs). Forty-seven percent of practices were located in metropolitan counties, 20 percent were located in micropolitan counties, and 33 percent were located in rural counties. Medicaid beneficiaries were attributed to all but two of the Maine PCMH Pilot practices; therefore, practice characteristics are similar between the two groups.

Table 9-2
Maine: Characteristics of practices participating in the Maine PCMH Pilot as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	70	68
Number of providers (total)	508	—
Number of providers per practice (average)	7	—
Practice type (%)		
Office-based practice	57	60
FQHC	19	15
CAH	13	15
RHC	11	10
Practice location type (%)		
Metropolitan	47	—
Micropolitan	20	—
Rural	33	—

NOTES:

- Maine did not provide a count of the unique number of participating Maine PCMH Pilot Medicaid providers.
- Practice location type could not be determined using the Medicaid claims files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; RHC = rural health clinic; — = data not available.

SOURCE: ¹ARC Q14 MAPCP Demonstration Provider File; ²Maine Medicaid enrollment and claims files. (See Chapter 1 for more details about these files.)

In **Table 9-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating Maine PCMH Pilot practices during the 3 years of the MAPCP Demonstration (January 1, 2012, through December 31, 2014). Medicare beneficiaries with fewer than 3 months of eligibility for the demonstration are not included in our evaluation or in this analysis. Thirty-one percent of the beneficiaries assigned to the Maine PCMH Pilot practices during the 3 years of the MAPCP Demonstration were under the age of 65, 40 percent were ages 65–75, 21 percent were ages 76–85, and 8 percent were over the age of 85. The mean age was 67. Nearly all beneficiaries were White (98%). Forty-one percent lived in urban areas, and 56 percent were female. Forty-seven percent were dually eligible for Medicare and

Medicaid, and 40 percent were eligible for Medicare originally due to disability. One percent of Medicare beneficiaries had end-stage renal disease (ESRD), and less than 1 percent resided in nursing homes during the year before their assignment to a Maine PCMH Pilot practice.

Table 9-3
Maine: Demographic and health status characteristics of Medicare FFS beneficiaries participating in the Maine PCMH Pilot from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	59,524
Demographic characteristics	
Age < 65 (%)	31
Age 65–75 (%)	40
Age 76–85 (%)	21
Age > 85 (%)	8
Mean age	67
White (%)	98
Urban place of residence (%)	41
Female (%)	56
Dually eligible beneficiaries (%)	47
Disabled (%)	40
ESRD (%)	1
Institutionalized (%)	0
Health status	
Mean HCC score groups	1.09
Low risk (< 0.48) (%)	22
Medium risk (0.48–1.25) (%)	51
High risk (> 1.25) (%)	27
Mean Charlson Comorbidity Index score	0.87
Low Charlson Comorbidity Index score (= 0) (%)	60
Medium Charlson Comorbidity Index score (≤ 1) (%)	21
High Charlson Comorbidity Index score (> 1) (%)	20
Chronic conditions (%)	
Essential hypertension	38
Lipid metabolism disorders	28
Diabetes without complications	19
Other respiratory disease	14
Coronary artery disease	12
Cardiac dysrhythmias and conduction disorders	10
Disorders of joint	9
Hypothyroidism	9
Acute and chronic renal disease	7
Dizziness, syncope, and convulsions	7
Anemia	6
Diabetes with complications	5
Chest pain	5
Urinary tract infection	5
Heart failure	4
Valve disorders	3
Renal failure	3

(continued)

Table 9-3 (continued)
Maine: Demographic and health status characteristics of Medicare FFS beneficiaries participating in the Maine PCMH Pilot from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	3
Malaise and fatigue (including chronic fatigue syndrome)	
Peripheral vascular disease	2
Cardiomyopathy	1
Dementias	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met Maine PCMH eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the Maine PCMH Pilot.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the OMB.

EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—the HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries’ health status during the year before their assignment to a Maine PCMH Pilot practice. HCC scores for Medicare beneficiaries assigned to a Maine PCMH Pilot practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to a Maine PCMH Pilot practice had a mean HCC score of 1.09, meaning that they were predicted to be 9 percent more costly than an average Medicare FFS beneficiary. Beneficiaries’ average score on the Charlson Comorbidity Index was 0.87, and just under two-thirds (60%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before their assignment to a participating Maine PCMH Pilot practice.⁵ The most common chronic conditions diagnosed were hypertension (38%), lipid metabolism disorders (28%), diabetes without complications (19%), other respiratory disease (14%), coronary artery disease (12%), and cardiac dysrhythmias and conduction disorders (10%). Fewer than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In *Table 9-4*, we report demographic and health status characteristics of Medicaid beneficiaries who were assigned to participating Maine PCMH Pilot practices during the evaluation period (January 1, 2012, through December 31, 2014). Forty-eight percent of the Medicaid beneficiaries assigned to Maine PCMH Pilot practices during the evaluation period

⁵ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples’ Charlson Comorbidity Index, the greater morbidity in the study sample.

were children, with a mean age of 7 years, and the remaining 52 percent of Medicaid beneficiaries were adults, with a mean age of 35 years. The majority of Medicaid beneficiaries were White. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in **Table 9-3**. An estimated 45 percent to 51 percent of Maine PCMH Pilot beneficiaries resided in an urban area. About 49 percent of the children were female, whereas 63 percent of adults were female. Only 3 percent of children were eligible for Medicaid due to disability, compared with 15 percent of adults. Children had relatively few chronic conditions (7% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score of 0.7.⁶ In contrast, adults had significantly more chronic conditions (30% had three or more chronic conditions) and a CDPS score of 0.7.

Table 9-4
Maine: Demographic and health status characteristics of Medicaid beneficiaries participating in the Maine PCMH Pilot from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	35,349	37,775
Demographic characteristics		
Mean age	7	35
White (%)	73	84
Urban place of residence (%)	45	51
Female (%)	49	63
Medicaid eligibility due to disability (%)	3	15
Other Medicaid eligibility (%)	97	85
Institutionalized (%)	0.7	0.2
Health status		
Mean CDPS score groups	0.7	0.7
Low birth weight and serious perinatal problems (%)	2.7	0.0
Mean number of chronic conditions	0.7	1.8
0 chronic conditions (%)	57	34
1–2 chronic conditions (%)	36	36
3 or more chronic conditions (%)	7	30

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met Maine PCMH Pilot eligibility criteria.
- Demographic and health status characteristics are calculated using Maine Enrollment and Claims files, using claims data for the 1-year period before a Medicaid beneficiary was first attributed to a PCMH after the start of the Maine PCMH Pilot.
- Urban place of residence is defined as those beneficiaries living in Metropolitan or Micropolitan Statistical Areas defined by the OMB.

CDPS = Chronic Illness and Disability Payment System; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: Maine Medicaid Enrollment and Claims Files.

⁶ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 had no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary had or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples' CDPS scores, the greater morbidity in the study sample.

Practice expectations. All Phase 1 practices were required to achieve 2008 NCQA PPC®-PCMH™ Level 1 recognition within 6 months of selection for the Maine PCMH Pilot. Phase 2 practices were required to achieve recognition under the 2011 NCQA PCMH recognition standards before participation in the Maine PCMH Pilot. As of December 31, 2014, six practices had achieved Level 1 recognition, 22 practices had achieved Level 2 recognition, and 46 practices had achieved Level 3 recognition.⁷

Practices also were required to meet the Maine PCMH Pilot's 10 Core Expectations as follows:

- Demonstrated leadership commitment to improving care and implementing the Maine PCMH Pilot
- Team-based approach to care
- Population risk stratification and management of patients at risk for adverse outcomes
- Enhanced beneficiary access to care
- Practice-integrated care management
- Behavioral and physical health integration
- Inclusion of patients and families in implementing the Maine PCMH model
- Connections to the community, including the local Healthy Maine Partnership (a health promotion partnership between community partners and state and local government) and other community resources
- Commitment to reducing unnecessary health care spending, reducing waste, and improving the cost-effective use of health care services
- Integration of health information technology (health IT) to support improved communication with and for patients

As a leadership component, Maine PCMH practices had to identify care management staff, establish clear roles and responsibilities for these staff, and provide care management training. To foster quality improvement and practice transformation, practices were required to participate in three learning collaborative sessions each year and regular PCMH practice leadership team webinars held by Maine Quality Counts. These requirements were expected to become more flexible in 2015, recognizing that participating practices were at varying levels of PCMH infrastructure and development. Maine Quality Counts was planning to focus resources on practices needing additional support to meet the pilot's Core Expectations. The Maine PCMH Pilot also identified 31 clinical quality measures to assess performance and gauge impact on which practices were required to report quarterly.

⁷ This number includes the four pediatric practices participating in the Maine PCMH Pilot but not in the MAPCP Demonstration. The source of this information is the Maine Quarterly Report ending December 31, 2014.

Support to practices. Participating practices received payments from public and private payers to support care management activities. In January 2010, Medicaid began paying practices \$7.00 per member per month (PMPM), half of which was the standard Medicaid PCCM payment and half of which was an additional care management fee. Starting in January 2013, Medicaid began paying practices participating in the MaineCare Health Homes initiative a total of \$12.00 PMPM. All but two Maine PCMH Pilot practices served as Health Homes and received this \$12.00 PMPM payment. Practices received a care management fee of approximately \$3.00 PMPM (specific payment amounts were confidential) from commercial insurers. Medicare paid a care management fee of \$6.95 per beneficiary per month (PBPM).⁸

The Maine PCMH Pilot launched CCTs in January 2012 to provide additional care management support for participating practices' most complex patients. Initially, eight CCTs each served one or more PCMHs, providing their patients with services that included needs assessment, nurse care management, panel management (i.e., identifying high-risk patients, scheduling appointments, and referring patients to care managers and other team members), brief intervention and referral for mental health and substance abuse services, psychiatric prescribing consultation, medication review and reconciliation, transitional care, health coaching, self-management of chronic disease, and connection with community resources. Two CCTs were added in 2013 when the demonstration expanded to 50 additional practices. All participating payers supported CCT services with additional fees, as follows:

- *Commercial insurers.* CCTs received \$0.30 PMPM from all participating commercial payers, except Maine Community Health Options. CCTs received \$150.00 PMPM from Maine Community Health Options for patients enrolled in care management services. Maine Community Health Options also paid CCTs an initial \$25.00 stipend if they provided outreach to potential patients at least three times, regardless of whether patients ultimately enrolled in care management services.
- *Medicare.* CCTs received \$2.95 PBPM from Medicare.
- *MaineCare.* Before January 2013, MaineCare paid CCTs \$3.00 PMPM for their entire MaineCare panel. Since January 2013, CCTs received \$129.50 PMPM for beneficiaries who agreed to participate in care management services and were in the top 5 percent of high-risk Medicaid beneficiaries referred from practices participating in the MaineCare Health Homes initiative. CCTs did not, however, receive this payment for Medicaid beneficiaries from the two Maine PCMH Pilot practices not participating in Health Homes.

Between January 1, 2012, and December 31, 2014, Maine PCMH Pilot practices and CCTs received a total of \$12,345,268 in payments from Medicare.⁹ The average Medicare payment per practice over the 3 years of the demonstration was \$169,113 (*Table 9-5*).

⁸ The Medicare PBPM payment amount does not reflect the 2 percent reduction due to sequestration beginning April 2013.

⁹ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

Table 9-5
Maine: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Average Medicare payment per practice ¹	Total Medicare payments ¹
Year One	\$99,470	\$2,188,341
Year Two	\$70,840	\$5,029,698
Year Three	\$71,211	\$5,127,227
Overall	\$169,113	\$12,345,268

NOTES:

- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.
- Total Medicare payments includes payments to practices and CCTs.

CCT = community care team; MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: ¹Medicare claims data.

In addition to the learning collaborative sessions and practice leadership team webinars noted above, Maine Quality Counts entered into a collaborative arrangement with the Maine Practice Improvement Network to provide quality improvement specialists who made onsite visits and recommendations to practices. Maine PCMH Pilot staff also contracted with experts to provide technical assistance to practices when a subject was outside their and the quality improvement specialists' areas of expertise; such subjects included behavioral health integration, connecting practices with community-based support, and health IT support.

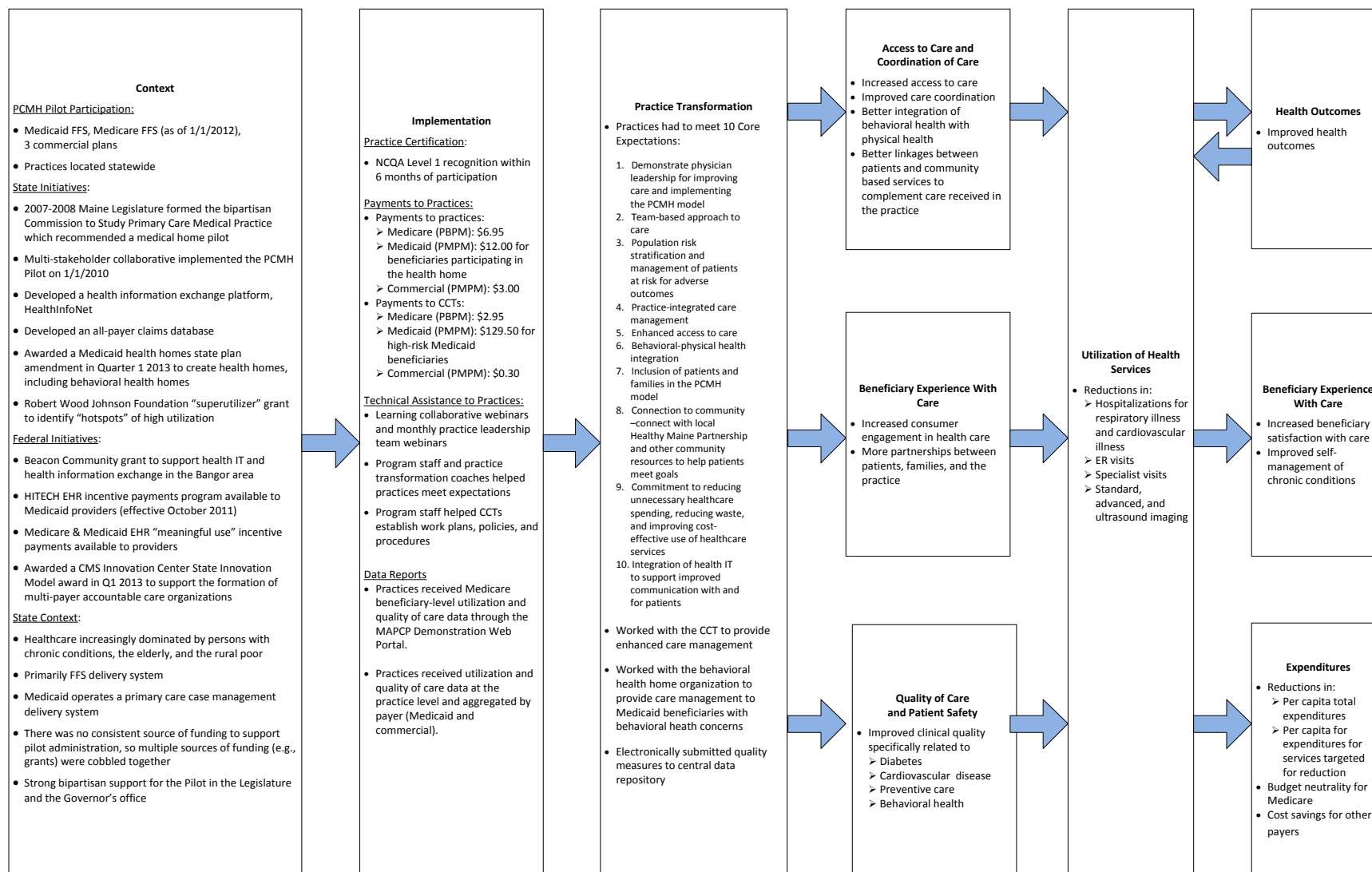
Data and analytics to support clinical care, quality improvement, practice transformation, and project evaluation came from various sources. Until summer 2012, the company Health Dialog had a contract to produce semiannual reports for practices using the Maine Health Data Organization's (MHDO) all-payers claims database (APCD). These reports provided practice-level feedback on various dimensions of clinical care and costs. Practices stopped receiving those reports when Health Dialog's contract ended in summer 2012. In late 2013, the Maine Health Management Coalition began sharing primary care practice reports based on commercial cost and utilization data; Medicaid and Medicare data were incorporated into these reports in 2015. HealthInfoNet connected practice and hospital EHRs through the HIE and provided a secure portal for accessing patient information, a centralized patient registry, and a quality reporting tool.

9.1.2 Logic Model

Figure 9-1 is a logic model of Maine's PCMH Pilot, meant to depict the hypothesized relationship between specific elements of the Maine PCMH Pilot and changes in outcomes. The first column describes the context for the demonstration, including the scope of the Maine PCMH Pilot, other state and federal initiatives that affected the state's initiative, and key features of the state context that could have affected the demonstration, such as the predominantly FFS delivery system in Maine and the increasing domination of health care utilization in Maine by persons with chronic conditions, the elderly, and the rural poor. The demonstration context affected the implementation of the Maine PCMH Pilot. Implementation activities were expected

to promote transformation of practices to PCMHs, reflected in care processes and other activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher-quality care, as well as to have a better experience with care and more engagement in decisions about treatments and management of their conditions. These improvements were, in turn, expected to promote more efficient utilization of health care services. Changes in utilization were expected to produce further changes, including improved health outcomes, improvements in beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for the Medicare program and cost savings for other payers. Improved health outcomes, in turn, were expected to reduce utilization further.

Figure 9-1
Logic model for Maine PCMH Pilot



CCT = community care team; CMS = Centers for Medicare & Medicaid Services; EHR = electronic health record; ER = emergency room; FFS = fee-for-service; Health IT = health information technology; HITECH = Health Information Technology for Economic and Clinical Health; MAPCP = Multi-Payer Advanced Primary Care Practice; NCQA: National Committee for Quality Assurance; PBPM = per beneficiary per month; PCMH = patient-centered medical home; PMPM = per member per month.

9.1.3 Implementation

This section uses primary data gathered from Maine site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 9.1*.

Major changes during the evaluation period. The Maine PCMH Pilot did not undergo many major changes during the course of the MAPCP Demonstration. The largest change that occurred was the expansion of the initiative. Overall, between the end of demonstration Year One (December 31, 2012) and the end of Year Three (December 31, 2014), the Maine PCMH Pilot increased the number of participating all-payer patients by 104 percent. This large increase was primarily due to two factors: an increase in the number of participating practices and CCTs and an increase in the number of participating payers. In 2014, Maine Community Health Options—a consumer-operated and -oriented plan—joined the Maine PCMH Pilot, becoming the sixth payer. Maine Community Health Options brought almost 14,000 more patients into the pilot.

The other major change that occurred during the demonstration evaluation period was a shift in how Maine Quality Counts, one of the three pilot conveners, provided technical assistance to practices. In 2013, Quality Counts began charging practices a small PMPM payment for some of its technical assistance programs in an effort to enhance sustainability and move away from a grants-based model. In 2014, Maine Quality Counts refined this funding model to ensure that if practices' panel sizes decreased, their technical assistance payment also would be reduced. In addition, Quality Counts began tailoring its technical assistance programs, recognizing practices' different levels of PCMH infrastructure and development.

Major implementation issues during the evaluation period. Throughout the course of the demonstration, the most sustained challenge for the Maine PCMH Pilot was supporting CCTs in their maturation and capacity building. In 2013, interviewees noted that it was taking more time than anticipated for some CCTs to integrate themselves into their regions—forming relationships with practices and hiring necessary staff. Making this integration more complex was the implementation of MaineCare's Health Homes initiative, which began in January 2013. CCTs expanded their scope of work to include Maine PCMH Pilot practices and Health Home practices. The Health Homes initiative also altered CCTs' Medicaid payments, transitioning them from a small population-based PMPM payment for their entire MaineCare panel to a much larger PMPM payment for beneficiaries in the top 5 percent of high-risk Medicaid beneficiaries referred from practices participating in the MaineCare Health Homes initiative (see *Section 9.1.1* for more information) who agreed to participate in care management services.

To be paid for each patient, CCTs had to attest to providing care management services through a Web portal. There were many challenges related to the Web portal during 2013 that precluded practices from being able to identify patients eligible for care management and to attest to providing these services. Interviewees reported in 2014 that CCTs were still feeling the effects of the transition to an attestation model and new payment methodology. In addition, CCTs had a high average service refusal rate of 42 percent to 47 percent. State officials and CCT staff suggested that this may have been because CCTs were not targeting the top 5 percent of

high-risk MaineCare beneficiaries but rather a high percentage of non-elderly patients who did not think they needed these supportive services. To support CCTs more effectively, Quality Counts conducted site visits to all 10 CCTs and worked on standardizing expectations, including how long patients should be engaged and how to identify the target population.

Another recurring challenge, as noted by state officials, was difficulty with data exchange and reporting. Whereas the majority of hospitals were connected and exchanged data through the HIE, HealthInfoNet, many primary care practices were not connected. For the multitude of practices owned by hospitals or health systems, the onus was on the hospital or system to ensure that their practices were connected. By 2014, many hospitals and health systems had developed their own proprietary data systems. One payer expressed concern that proprietary systems would make it increasingly challenging to leverage statewide tools to encourage data exchange across systems, and this would create issues of interoperability. In addition, practices received claims-based primary care practice reports from the Maine Health Management Coalition, but throughout the demonstration, they continued to express their desire for reports that integrated clinical and claims data. One state official noted that there was uncertainty in the state about whose role it was to provide integrated data analytics, despite strong interest from many major data organizations to “own” the development of integrated data resources provided to practices.

External and contextual factors affecting implementation. Maine’s health care landscape grew increasingly complex during the MAPCP Demonstration evaluation period. In addition to the Health Home initiative and SIM Initiative Model Testing award mentioned earlier (see Section 9.1.1 for more information), many participating commercial payers implemented their own single-payer PCMH programs. The payers continued to support the Maine PCMH Pilot despite the increased administrative burden of participating in two PCMH programs; one state official praised the commercial payers for “institutionalizing [enhanced] payments to [primary care] practices,” both within the Maine PCMH Pilot and beyond. Lastly, many health systems formed accountable care organizations (ACOs) and entered into risk-based contracts with commercial payers or Medicare. Despite many concurrent reform initiatives, stakeholders did not identify negative impacts of these programs on the Maine PCMH Pilot; many interviewees cautioned that, for practices, “provider fatigue” was a challenge with which the Maine PCMH Pilot had to contend over time.

9.1.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, interviewees consistently praised the strong leadership and vision of the Maine PCMH Pilot conveners as the force behind the successful engagement from payers and other stakeholders. A second related lesson learned, expressed by many stakeholders, was that transformation takes time to show a return on investment. One interviewee from 2012 said that if payers did not begin to see a return on investment within the subsequent 3 to 6 months, (s)he was not sure if the Maine PCMH Pilot could maintain payer commitment. During interviews conducted in 2013 and 2014, however, payers were more realistic about the potential rate of change. One payer reflected, “Changes that are needed within practices to transition from being traditional practices to becoming team-based practices entail a long journey. We need to be realistic about the change rate.” Another observed, “The pilot has value even if it hasn’t shown a value [quantitatively] yet.” Many interviewees also noted that setting clear expectations for practices and CCTs and implementing payment methods

that move away from FFS were critical to advancing transformation. In 2013 and 2014, the Maine PCMH Pilot conveners began providing written expectations for practices and CCTs to support them in meeting Core Expectations. Nevertheless, several state officials and payers indicated that meeting these expectations would be challenging for practices without true payment reform that incentivized quality over volume. One stakeholder said that overlaying PMPM payments on top of FFS sent mixed messages to providers, because the PMPM payments were not enough to remove practices' dependency on FFS to pay the bills.

Another lesson for the Maine PCMH Pilot was that a phased-in approach to rolling out multi-payer initiatives worked well. State officials felt that lessons learned during the initial phase helped to support incoming practices more effectively and made for a smooth expansion of the pilot.

Finally, state officials stressed the importance of planning for sustainability to ensure longevity of the Maine PCMH Pilot after the MAPCP Demonstration ended. Some payers, including Anthem BCBS and Maine Community Health Options, had already shown their commitment to the Maine PCMH Pilot model and CCTs by institutionalizing payments to practices and CCTs as part of either their individual contracts or single-payer PCMH programs.

9.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the demonstration and patients' awareness of these changes, drawing on data from our focus groups and our three site visits (*Section 9.2.1*). We then present practices' experiences using technical assistance provided as part of the demonstration (*Section 9.2.2*) and practices' views on the payment model used in this demonstration (*Section 9.2.3*), drawing on data from our site visits. Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (*Section 9.2.4*). We then synthesize the site visits and survey findings in *Section 9.2.5*.

9.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. Because they were already considered early adopters of PCMH concepts and procedures, the practices chosen to participate in the Maine PCMH Pilot already were meeting many of the expectations of a PCMH before joining the Maine PCMH Pilot. According to baseline data collected by the Muskie School of Public Health (Payne & Gray, 2011), 80 percent of pilot practices were using an EHR, 68 percent reported having some sort of care coordination program, and essentially all had taken steps to improve access to care. None of the practices had achieved NCQA PPC®-PCMH™ recognition before their participation in the Maine PCMH Pilot, however, and all acknowledged making substantial changes in their practice as a result of participating. Practices were required to achieve 2008 NCQA PPC®-PCMH™ recognition within 6 months of selection. According to the Muskie School of Public Health data, within 4 months of the Maine PCMH Pilot's implementation in 2010, 50 percent of the practices had achieved NCQA Level 1 recognition, 19 percent were at NCQA Level 2, and 31 percent were already at NCQA Level 3.

A hallmark of the Maine PCMH Pilot was the expectation for participating practices to focus on the pilot's 10 Core Expectations—performance measures that went beyond those

included in the NCQA PPC[®]-PCMH[™] standards. According to self-reported data collected by Maine Quality Counts, by the end of Pilot Year One (2010), 24 of the 26 practices (including the four pediatric practices in the pilot that were not part of the MAPCP Demonstration) had met all of the critical elements of the 10 Core Expectations.

By the second and third years of the pilot, with the 10 Core Expectations having provided a very solid foundation for the PCMH concept, practices were able to fine-tune and expand on some of the 10 Core Expectation elements and to begin addressing other performance goals. As an example, establishing a patient advisory council was one of the 10 Core Expectations, but as the pilot progressed, several practices expanded the number of meetings or invested in staff training on how to facilitate these meetings. Another example was an increasing emphasis on obtaining better feedback from their patients through surveys; several practices had adopted either more frequent or even real-time surveys to supplement the annual survey conducted by the Maine PCMH Pilot, and one practice had installed kiosks in the waiting area that asked a rotating set of five satisfaction-related questions. An emphasis on feedback did resonate with some focus group participants. Some participants said that they had received questionnaires from their primary care provider (PCP) soliciting feedback—either after every visit, once a year, or just once. One participant said her practice did not send questionnaires, but it had cards to provide feedback in the waiting room, and you could take one and fill it out if you wanted. However, about half of focus group participants did not remember being asked for feedback.

Providing enhanced access, care coordination, EHR integration, and systematic use of data to improve patient care was more challenging for smaller practices than for practices that may have received extra resources because they were part of larger health systems or also were participating in an ACO. However, practices continued efforts throughout the pilot program to improve access (adding new weekend sessions, extended hours, group clinics, or telehealth services) and to improve the efficiency and impact of the patient's visit, such as adding pre-visit reviews by medical assistants (MAs) or doing a better job providing relevant patient-education resources.

Practice transformation included the adoption and utilization of quality-related data to improve performance. This was essentially nonexistent before the Maine PCMH Pilot and was slow to develop during the first year, as practices started to add new staff or new staff responsibilities to collect and analyze relevant data. As the Maine PCMH Pilot progressed, essentially all of the practices became actively engaged in using data on their own performance to identify gaps and address quality performance. By the third year, many or most practices had refined their approach to focus on the “high outlier” patients for more intense quality monitoring. The maturation of these quality monitoring programs was aided substantially by elements outside of the practice itself, including the increasing availability of data through the Maine PCMH Pilot or insurers and the fact that several practices had become members of local ACOs, which provided both data and analytical staff for these efforts. On the downside, the increasing emphasis on data consumed time and attention from practice staff and leadership, to the point that several practices felt overloaded with data and began voicing questions about the value of this work and its relevance to the actual quality of care being delivered.

Another notable example of steady progress in practice transformation was the expansion of services to meet the behavioral health needs of patients. The need for improved behavioral

health services was clear at the start of the Maine PCMH Pilot, and essentially all practices adopted measures to address this challenge by adding new staff (part-time psychologists or embedded clinical social workers) or new programs, such as a new Behavioral Health Home at Maine Medical Center and a telepsychiatry service at one practice. Other practices invested in medical education programs focused on anxiety and depression management for their staff so that primary care staff would be able to manage these common problems adequately in lieu of a subspecialty referral. Other practices were using their CCTs to provide care and services for their patients with behavioral and mental health problems, although these practices encountered a major hurdle when MaineCare transitioned from CCTs to behavioral health homes (which were outside the Maine PCMH Pilot program) to provide care for patients with serious mental illness. All in all, and acknowledging that the integration of behavioral health remained a major challenge, practices achieved significant improvement in this domain during the Maine PCMH Pilot. This accomplishment was reflected in results from the MAPCP Demonstration provider survey (**Table 9.6**), showing that Maine practices significantly and substantially outperformed the average of the other seven MAPCP Demonstration states in meeting the behavioral health needs of its patients (81% for Maine, compared with 64% for the other states).

An area with challenges throughout the Maine PCMH Pilot was accessing data through the state's data warehouse, HealthInfoNet. Although functionality and uptake had clearly improved over the 3 years, the ability of practices to find notes and summaries on their patients and to receive alerts remained frustratingly limited. In part compensating for this problem, many practices reported an improved and, in some cases, excellent ability to exchange information with their local hospitals. This enabled reliable and near-real-time alerts about patients from the practice who had been admitted, discharged, or seen in the ER, information which (in the later years of the Maine PCMH Pilot) was used to initiate comprehensive care coordination efforts targeting these transition patients.

The Maine PCMH Pilot practices had good things to say about the certification and recertification process. This no doubt reflected the high levels of satisfaction the practices felt for the state's leadership of the Maine PCMH Pilot and the advice and support they had received in regard to practice transformation.

Practice staffing changes. Year One of the MAPCP Demonstration saw staffing changes in almost every practice to support the PCMH more effectively. Some practices added MAs or physician extenders, and others clarified new responsibilities for their existing staff that supported better care coordination or performance improvement work (e.g., preventive care monitoring, enhanced patient education, better pre- and postvisit notes).

In Year Two, changes were more incremental, as practices fine-tuned the roles and responsibilities of the office staff and focused more on enhancing team-based care. Practices that could afford it added staff to help with care coordination. Some practices started to experience staff turnover problems and found it frustrating to have to train new staff after having invested in training staff who were no longer there.

In Year Three, some practices shifted away from using MAs, opting instead to hire and use registered nurses (RNs) to take advantage of their more advanced skill set to help in care

coordination and patient education. One practice began using a medical scribe to allow the physician time to focus more on the patients and their care needs.

Health IT. All but one of the 22 first Maine PCMH Pilot practices had implemented an EHR by the end of Year One, and usage was universal among participating practices by the end of Year Two. Data obtained by surveying providers (*Table 9-6*) indicated that 98 percent were using electronic medical records that provided both basic and advanced decision-support features, significantly more than the 93 percent average across all MAPCP Demonstration states. Practices reported becoming more familiar with their EHRs as time went by, taking advantage of more features, and taking better advantage of functionalities, such as using the registry functionality to generate internal quality reports, for example, on blood pressure or glycemic control. Essentially all of the practices went on to attest to Meaningful Use (MU-1), and most have subsequently advanced to MU-2. Although some practices were increasingly able throughout the demonstration to exchange information with their local hospital, this functionality was not universal by the end of Year Three. Except for practices in the same hospital-based system, practices could not exchange information directly through their EHRs.

Patient awareness of PCMH. Although most focus group participants had not heard the term “medical home,” many consistently observed the emergence of PCMH features, particularly the increased use of EHRs and the availability of same or next-day appointments at their providers’ offices. In addition, participants mentioned the addition of nurse practitioners (NPs) and physician assistants (PAs) whom they could now see for care. Participants viewed these changes favorably.

Patient awareness of practice changes. The primary changes in the past few years noticed by focus group participants related to the increased use of EHRs. Generally, they felt that technology improved the accuracy of information, facilitated coordination, and saved time. Several participants mentioned that they had started getting printouts at the end of an office visit summarizing the visit and providing follow-up recommendations. Many participants noted that their practices now have patient portals—although a minority of focus group participants had used the portals. People also commented on shortened wait times and receiving reminder calls about appointments. Focus group participants also mentioned the addition of NPs and PAs to practices.

9.2.2 Technical Assistance

Maine PCMH Pilot practices were in unanimous agreement about the value of the technical assistance they received at the beginning and throughout the Maine PCMH Pilot from the state convener, Maine Quality Counts. This included leadership webinars, learning collaboratives, and, later, support sessions focused on topics identified by the practices as being most relevant, such as avoiding readmissions, open-access scheduling, and optimizing the role of MAs. Practices especially valued being able to learn from and support each other at these various events.

Practices said that they most highly valued the steady involvement of practice coaches (quality improvement specialists) that made on-site visits and recommendations. Some of these were provided by the practices’ ACO, but most came from a collaborative arrangement between

Maine Quality Counts and the Maine Practice Improvement Network, a separate state initiative. Coaches worked directly with pilot practices to identify areas for improvement, develop plans for change, and help assess their impact on the practice. Coaches also assisted with behavioral health integration, connecting practices with community-based support and health IT support.

All practices were using external quality reports by the end of the Maine PCMH Pilot, though with mixed effectiveness and enthusiasm. By the end of the Maine PCMH Pilot, data sources included quality data on Medicare beneficiaries available through the MAPCP Demonstration Web portal, beneficiary reports from insurers, reports from a data repository maintained by the University of New Hampshire, and information from MaineCare Health Home beneficiary utilization files. Problems with using the external quality reports were noted by all the practices, starting with the fact that the reports derived from many different sources and had many different formats. Overlap of information, information that was missing or wrong (for example, attribution data in the earlier periods), and existing information that could not be accessed (information in HealthInfoNet for some practices) all were noted as points of frustration. For these reasons, many practices increasingly relied on internally generated quality reports from their own EHRs and found these reports the most useful in monitoring quality in their practices.

9.2.3 Payment Supports

Comments regarding payments were consistent throughout the Maine PCMH Pilot. The payments received by practices participating in the Maine PCMH Pilot were very much appreciated and had been essential in supporting the PCMH by allowing practices to hire staff for care coordination and quality management and to purchase or maintain their advanced EHRs: “If we did not have that money coming, we would not be able to fund the level of care management we have,” one practice explained.

Practices were similarly uniform in voicing concerns that the Maine PCMH Pilot payment supports were not adequate to support appropriate and comprehensive care coordination. A change in the CCT funding for Medicaid beneficiaries during the Maine PCMH Pilot, from a population-based PMPM payment to a PMPM payment for up to 5 percent of high-risk, high- cost Medicaid beneficiaries in a practice, was viewed negatively by the practices, who perceived this as reducing the CCT services available to them.

9.2.4 Practices’ Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify the activities associated with the PCMH model of care in which their practice regularly engaged. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level of adoption of an activity, and one representing a high level of adoption of an activity. Survey findings presented in *Table 9-6* and *Table 9-7* focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted.

The Overall Practice Transformation Index reported in **Table 9-6** is the percentage of activities adopted at a high level out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities that Maine providers reported engaging in at a high level was comparable to the average percentage across the eight MAPCP Demonstration states, both overall and within four of the six PCMH domains. The share of access to care activities that Maine PCMH Pilot providers reported engaging in at a high level (83%) was significantly higher than the eight-state MAPCP Demonstration average (76%), as was the share of health IT activities (98%) compared with the eight-state MAPCP Demonstration average (93%).

Table 9-6
Maine: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in Maine (N = 90 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	74	72
Practice Transformation Index by Domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	83*	76
Care management (without involvement of other providers)	80	78
Care coordination (involving other health care providers)	73	68
Patient engagement and self-management	58	57
Quality improvement	71	76
Health IT	98*	93

NOTES:

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

Health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

Table 9-7 indicates that the percentage of providers in Maine who reported a high-level adoption of particular PCMH activities was comparable to the MAPCP Demonstration eight-state average for 14 of the 23 PCMH questions in our survey. Survey questions that Maine PCMH Pilot providers answered differently from providers in the other seven MAPCP Demonstration states, on average, are noted in **Table 9-7** and discussed in the relevant outcome sections in this chapter.

Maine providers performed better than the eight-state average for six activities:

- Clinical management for patients with complex conditions for whom care management might be beneficial (94% versus 87%)
- Preventive screenings at specifically scheduled appointments (87% versus 78%)
- Referrals for patients in need of behavioral health support or community-based resources to partners with whom the practice had established relationships (81% versus 64%)
- Follow up with patients after they were seen in the ER or hospital (94% versus 80%)
- Use of quality improvement activities (90% versus 81%)
- Use of EHRs for basic functions, clinical decision support, and quality measures (98% versus 93%).

A lower share of Maine providers than the MAPCP Demonstration eight-state average reported:

- Formalizing practice agreements and referral protocols with commonly referred to practices (39% versus 50%); and
- Collaboratively developing care plans with patients to address chronic conditions (52% versus 63%).

These results are contextualized and discussed in greater detail in subsequent sections of this chapter.

Table 9-7
Maine: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Maine (N = 90 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to Care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	86	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems though phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	88	86

(continued)

Table 9-7 (continued)
Maine: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Maine (N = 90 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care and in person during some evenings or weekends. The practice actively participates in coordinating ER care and follows up with patients after visits to the ER.	71	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent time frame.	67	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays and is involved as needed.	79	74
Care Management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	64	59
Visit focus... Is organized around the specific reason for a patient's visit with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	82	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	97	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers and provides educational resources and ongoing support to assist with self-management.	94*	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	87*	78
Tracking and follow-up with patients about test results... Is consistently done.	91	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		

(continued)

Table 9-7 (continued)
Maine: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Maine (N = 90 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Tracking and follow-up with patients for important referrals... Is consistently done.	76	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	39*	50
Patient referral information to specialists, hospitals, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	92	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	81*	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified time frame.	94*	80
Patient Engagement and Self-Management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	52*	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	49	51
Involving patients and caregivers in health care decision making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, or teach-back techniques.	60	67
Patient self-management support for chronic conditions... Is provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	49	57

(continued)

Table 9-7 (continued)
Maine: Percentage of respondents reporting a high level of adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey Question	% in Maine (N = 90 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Quality Improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	90*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns and is incorporated into practice improvements.	81	79
Health IT (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions, such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	98*	93

NOTE: ¹Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

9.2.5 Discussion of Practice Transformation

Throughout the Maine PCMH Pilot, the PCMH practices we interviewed were uniformly enthusiastic about the program and the many ways it had enhanced their ability to improve the quality of care they provided. The goals of the program aligned with their goals as PCPs, and the increased satisfaction of both the providers and the patients reinforced the positive impact of transformation. Practices' reports that the Maine PCMH Pilot had allowed them to become more patient centered, improve access, and increase both patient and staff satisfaction were corroborated by the findings of the provider survey in which Maine practices reported a high level of engagement around access to care, care coordination, and quality improvement. To paraphrase a sentiment we heard at many sites: "Our patients are getting the best quality care possible." As a whole, the Maine PCMH Pilot was a platform to provide enhanced shared services, such as care coordination and technical support, while allowing each practice to focus on its own priorities. Although the PCMH payments from payers were considered critical, they were also deemed not large enough to support all transformation activities.

Although enthusiastic about participating in the pilot, practices also acknowledged some of the cons of PCMH work, noting challenges with getting the full practice team on board and

extensive monitoring and documentation requirements to meet NCQA recognition requirements as well as the 10 Core Expectations. Implementing EHRs and becoming adept at using the EHR's reporting analytics to inform quality improvement activities was also a constant challenge. In general, use of data to drive practice change was challenging. In addition to learning to leverage the EHR, practices struggled to make sense of and use utilization reports provided to them by multiple entities, often choosing instead to rely on information gleaned from their EHRs instead. The constant drive to improve brought with it the stress of change, another challenge that did not diminish with time.

9.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 9.3.1*); impacts on utilization of services and clinical quality (*Section 9.3.2*); and a synthesis of these findings (*Section 9.3.3*).

9.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

Over the course of the Maine PCMH Pilot, providers interviewed during site visits spoke of a variety of initiatives aimed at improving quality of care, patient safety, and health outcomes. The most frequently cited initiatives included the use and review of EHR and claims data to guide quality improvement initiatives for certain populations (e.g., patient panels stratified by age, sex, or chronic condition); patient follow-up after hospital discharge, including medication reconciliation after discharge when the provider deemed it necessary and scheduling follow-up appointments with the PCP; and integration with the CCTs to identify high-risk patients in need of extensive care management. Toward the end of the Maine PCMH Pilot, as practices became more familiar with their EHR capabilities, some practices mentioned dissemination of health education materials (such as fact sheets) embedded in the EHR, so that patients received relevant educational materials at the point of care. Others mentioned dissemination of post-visit summaries, medication lists, and problem lists, so that patients were given as much information as possible about their health.

The strategies mentioned by providers during site visits were corroborated by patients. During the focus groups with Maine PCMH Pilot enrollees, some focus group participants mentioned receiving printouts from the EHR after visits, whereas others discussed receiving phone calls from their provider after an ER visit or hospital stay to see if the participant had any questions about the discharge plan or medications. Other focus group participants mentioned that although their PCP may not call after a hospital stay, the provider would discuss the stay at the next primary care visit.

Throughout the course of the Maine PCMH Pilot, use of the EHR to document care provided and to analyze gaps in evidence-based care was probably the most frequently mentioned strategy to improve quality, especially in early stages as practices were ramping up efforts to meet the quality monitoring requirements. Practices discussed the Maine PCMH Pilot requirement to report quarterly on 31 quality indicators related to diabetes, cardiovascular disease, and preventive care use. These data were used by Maine PCMH Pilot staff to determine whether practices met specific quality performance targets. At the beginning of the Maine

PCMH Pilot, practices often reported that, although they may have been conducting the requisite tests associated with these indicators, they may not have been routinely documenting the services or, in some instances, they were not routinely performing the services. Given the requirement to report on these indicators, practices discussed their transition to being more systematic about outreach to patients, documenting services performed, extracting EHR data to monitor progress in meeting quality benchmarks, and reviewing progress to inform development of quality improvement activities. Practices implemented various strategies (including sending letters, calling patients, and reminding patients at the point of care) to notify patients of any care gaps and encourage them to come in for the needed test, exam, or service. Notably, as CCTs became more integrated with practices and obtained access to EHR data over time, some CCTs reported using process of care and utilization quality metrics to drive decisions about the mix of services they chose to provide to a CCT patient and the length of stay within the CCT program.

One challenge heard each year during site visits was the burden on practices of reporting numerous quality metrics for the various initiatives they participated in (e.g., the Maine PCMH Pilot, ACOs). Practices often mentioned that, although these quality data were important in identifying and addressing gaps in care, coordinating among the various initiatives was challenging and burdensome.

Patients noted that providers were improving outreach to and contact with patients to improve quality of care. Some focus group participants talked about phone calls they received from their provider to discuss test results, whereas other participants mentioned that their providers communicated test and lab results via e-mail or a patient portal. Results from the CAHPS PCMH survey in Maine also lent support to what was heard during site visits and focus groups. An estimated 89 percent of beneficiaries responding to the CAHPS PCMH survey reported that, at each visit with the provider, there was discussion of the prescription medications the beneficiary was taking.

Consistent with the focus on tracking quality metrics, the provider survey showed that a significantly higher share of Maine PCMH Pilot providers (90%) reported using systematic quality improvement approaches to meet organizational goals and to track and follow up with patients seen in the ER or hospital (94%) as compared with the average for providers across the eight MAPCP Demonstration states (81% and 80%, respectively).

As mentioned in **Section 9.1.1**, the Medicaid Health Home program rolled out in Maine midway through the Maine PCMH Pilot, and with it came certain requirements that could have longer-term impacts on improving the quality of care related to behavioral health. In particular, in the last year of the Maine PCMH Pilot, some practices discussed their work around implementing annual depression and substance abuse screening (for adults and teenagers) and developmental screening (for children), which are required to be a Medicaid Health Home. The expectation was that as practices incorporated these screenings into their daily operations, they would then be able to monitor systematically and potentially improve the care provided to patients with behavioral health concerns. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, Maine PCMH practices earned a weighted score of 57 out of 100 on a multiquestion composite scale that measures the degree to which practices ask about behavioral health issues (**Figure 9-2**). This composite reflects that:

- 67 percent of respondents said their practice staff asked if they felt depressed.
- 58 percent reported that practice staff talked to them about things in their lives that worried or stressed them.
- 42 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

Another quality improvement initiative mentioned by some practices later in the MAPCP Demonstration was the collaboration between the practice and the quality improvement specialist, who was funded through SIM grant (discussed in **Section 9.1**) and who helped the practice implement quality improvement activities.

9.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

The PCMH pilot was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the Maine PCMH Pilot and two CGs for Medicare (PCMHs and non-PCMHs) and one CG for Medicaid (non-PCMHs).

- **Table 9-8** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and on one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 9-9** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population include breast cancer screening, cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the likelihood of receiving the service in either Year One, Year Two, Year Three, or all 3 years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared with the CG. Maine PCMH Pilot beneficiaries are expected to have positive values for all indicators, except the “none” indicator in diabetes care.

PCMH comparison practices were excluded from the Medicaid analysis. There were relatively few PCMH CG practices (about 10% of the CG practice sample were PCMH practices), and the number of Medicaid beneficiaries attributed to those practices was low. The small sample size resulted in unstable estimates of change.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to Maine PCMH Pilot practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 9-10** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with the Maine PCMH Pilot in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If the Maine PCMH Pilot was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have had a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 9.3.3**.

Table 9-8
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 9,379)	-0.06	[-1.84, 1.72]	1.81	[-0.04, 3.65]
Year Two (N = 6,613)	-2.04	[-4.13, 0.04]	-0.46	[-3.20, 2.28]
Year Three (N = 2,272)	-5.01*	[-7.07, -2.95]	-0.22	[-3.22, 2.77]
Overall (N = 9,960)	-1.39*	[-2.78, -0.01]	0.73	[-1.33, 2.80]
Retinal eye examination				
Year One (N = 9,379)	2.73	[-1.30, 6.76]	0.57	[-1.60, 2.73]
Year Two (N = 6,613)	-4.79*	[-8.89, -0.68]	0.74	[-1.61, 3.08]
Year Three (N = 2,272)	-2.79	[-10.79, 5.22]	0.79	[-2.37, 3.94]
Overall (N = 9,960)	-0.68	[-4.56, 3.21]	0.66	[-0.97, 2.28]
LDL-C screening				
Year One (N = 9,379)	0.35	[-3.60, 4.31]	0.96	[-0.88, 2.79]
Year Two (N = 6,613)	-1.65	[-7.05, 3.75]	-0.27	[-3.08, 2.54]
Year Three (N = 2,272)	-8.68*	[-12.34, -5.03]	-2.03	[-5.87, 1.81]
Overall (N = 9,960)	-1.50	[-5.14, 2.15]	0.14	[-1.76, 2.04]
Medical attention for nephropathy				
Year One (N = 9,379)	1.00	[-7.06, 9.05]	0.44	[-2.58, 3.47]
Year Two (N = 6,613)	0.93	[-7.99, 9.85]	-2.60	[-6.62, 1.42]
Year Three (N = 2,272)	-9.50*	[-14.84, -4.17]	-1.81	[-6.29, 2.66]
Overall (N = 9,960)	-0.34	[-7.89, 7.22]	-0.94	[-4.03, 2.15]
Received all 4 diabetes tests				
Year One (N = 9,379)	3.65	[-2.69, 10.00]	0.10	[-2.94, 3.14]
Year Two (N = 6,613)	-2.13	[-11.70, 7.45]	-3.55	[-7.42, 0.31]
Year Three (N = 2,272)	-13.06*	[-20.10, -6.02]	-2.10	[-6.44, 2.24]
Overall (N = 9,960)	-0.52	[-7.47, 6.43]	-1.49	[-4.37, 1.38]
Received none of the 4 diabetes tests				
Year One (N = 9,379)	0.08	[-0.49, 0.66]	-0.84*	[-1.56, -0.11]
Year Two (N = 6,613)	0.31	[-0.76, 1.39]	0.32	[-0.57, 1.21]
Year Three (N = 2,272)	1.77*	[1.07, 2.48]	-0.10	[-1.35, 1.14]
Overall (N = 9,960)	0.38	[-0.24, 1.00]	-0.33	[-1.03, 0.38]

(continued)

Table 9-8 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total lipid panel				
Year One (N = 13,082)	1.96	[-1.47, 5.39]	-1.02	[-3.04, 1.00]
Year Two (N = 9,779)	-1.75	[-8.24, 4.74]	-2.38	[-5.16, 0.40]
Year Three (N = 3,619)	-5.56	[-11.33, 0.21]	-3.99*	[-7.87, -0.11]
Overall (N = 15,123)	-0.44	[-4.62, 3.74]	-1.93	[-3.99, 0.13]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found no evidence that the Maine PCMH Pilot impacted the process of care measures, with the exception of HbA1c testing. Specifically, **Table 9-8** shows that:

- The *overall* likelihood of receiving **HbA1c testing** decreased among Maine PCMH Pilot Medicare beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of low-density lipoprotein cholesterol (LDL-C) screening, retinal eye examinations, medical attention for nephropathy, receipt of all four diabetes tests, receipt of none of the diabetes tests, and total lipid panels.

Table 9-9
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
HbA1c testing						
Year One	N/A	N/A	N/A	1,247	-7.52*	[-11.25, -3.79]
Year Two	N/A	N/A	N/A	822	0.77	[-10.43, 11.97]
Year Three	N/A	N/A	N/A	281	-4.37	[-15.66, 6.92]
Overall	N/A	N/A	N/A	1,469	-4.24	[-8.49, 0.01]
Retinal eye examination						
Year One	N/A	N/A	N/A	1,247	-2.60	[-13.77, 8.57]
Year Two	N/A	N/A	N/A	822	3.66	[-7.31, 14.63]
Year Three	N/A	N/A	N/A	281	4.19	[-18.00, 26.38]
Overall	N/A	N/A	N/A	1,469	0.40	[-9.90, 10.70]
LDL-C screening						
Year One	N/A	N/A	N/A	1,247	-5.64	[-14.60, 3.32]
Year Two	N/A	N/A	N/A	822	2.82	[-10.43, 16.06]
Year Three	N/A	N/A	N/A	281	-7.83	[-24.47, 8.80]
Overall	N/A	N/A	N/A	1,469	-2.94	[-9.53, 3.64]
Medical attention for nephropathy						
Year One	N/A	N/A	N/A	1,247	-5.95*	[-10.18, -1.72]
Year Two	N/A	N/A	N/A	822	-11.55*	[-17.70, -5.40]
Year Three	N/A	N/A	N/A	281	-11.43	[-23.71, 0.86]
Overall	N/A	N/A	N/A	1,469	-8.56*	[-12.93, -4.19]
Received all 4 diabetes tests						
Year One	N/A	N/A	N/A	1,247	-6.63	[-16.92, 3.66]
Year Two	N/A	N/A	N/A	822	3.52	[-6.57, 13.61]
Year Three	N/A	N/A	N/A	281	1.17	[-18.88, 21.23]
Overall	N/A	N/A	N/A	1,469	-2.15	[-10.50, 6.21]

(continued)

Table 9-9 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Received none of the 4 diabetes tests						
Year One	N/A	N/A	N/A	1,247	0.28	[-1.40, 1.96]
Year Two	N/A	N/A	N/A	822	3.30*	[0.94, 5.66]
Year Three	N/A	N/A	N/A	281	3.27	[-2.15, 8.68]
Overall	N/A	N/A	N/A	1,469	1.69*	[0.06, 3.33]
Breast cancer screening						
Year One	N/A	N/A	N/A	3,642	0.82	[-2.61, 4.25]
Year Two	N/A	N/A	N/A	2,317	6.70*	[2.67, 10.74]
Year Three	N/A	N/A	N/A	777	-16.12*	[-22.83, -9.41]
Overall	N/A	N/A	N/A	4,023	0.89	[-2.29, 4.07]
Cervical cancer screening						
Year One	N/A	N/A	N/A	12,453	-0.64	[-2.91, 1.62]
Year Two	N/A	N/A	N/A	7,279	-2.44	[-7.76, 2.88]
Year Three	N/A	N/A	N/A	2,301	2.95	[-1.03, 6.93]
Overall	N/A	N/A	N/A	13,350	-0.86	[-3.24, 1.52]
Appropriate use of antidepressant medications (acute)						
Year One	N/A	N/A	N/A	3,228	-0.75	[-5.20, 3.71]
Year Two	N/A	N/A	N/A	2,092	-0.35	[-4.60, 3.91]
Year Three	N/A	N/A	N/A	797	0.68	[-5.07, 6.43]
Overall	N/A	N/A	N/A	4,656	-0.42	[-3.97, 3.12]
Appropriate use of antidepressant medications (continuous)						
Year One	N/A	N/A	N/A	3,228	-0.24	[-3.59, 3.10]
Year Two	N/A	N/A	N/A	2,092	-1.37	[-5.56, 2.82]
Year Three	N/A	N/A	N/A	797	-0.91	[-5.94, 4.12]
Overall	N/A	N/A	N/A	4,656	-0.72	[-3.80, 2.37]

(continued)

Table 9-9 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Appropriate use of asthma medications						
Year One	748	5.82*	[0.03, 11.61]	1,042	-0.04	[-6.99, 6.91]
Year Two	520	14.95*	[4.18, 25.72]	609	3.75	[-6.25, 13.74]
Year Three	257	19.41*	[4.58, 34.23]	193	22.45*	[6.81, 38.08]
Overall	1,031	11.22*	[3.13, 19.32]	1,349	3.57	[-2.42, 9.56]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique PCMH pilot participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found some evidence that the Maine PCMH Pilot decreased the likelihood of process of care measures. Among Medicaid children, we found evidence of an impact on the appropriate use of asthma medications. Specifically, **Table 9-9** shows that:

- The *overall* likelihood of **medical attention for nephropathy** decreased among adult Maine PCMH Pilot Medicaid beneficiaries compared with adult beneficiaries assigned to non-PCMH comparison practices.
- The *overall* likelihood of **appropriate use of asthma medications** increased among child Maine PCMH Pilot Medicaid beneficiaries compared with child beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examinations, receipt of all four diabetes tests, receipt of none of the diabetes tests, breast cancer screening, and cervical cancer screening.

Table 9-10
Maine: Comparison of average MAPCP Demonstration effect estimates for
health outcomes among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 21,561)	-0.16	[-1.30, 0.97]	-0.11	[-0.81, 0.60]
Year Two (N = 49,735)	0.77	[-0.97, 2.50]	0.60	[-0.19, 1.39]
Year Three (N = 50,605)	-0.32	[-2.59, 1.96]	1.46*	[0.59, 2.33]
Overall (N = 59,524)	0.15	[-1.55, 1.86]	0.83*	[0.22, 1.45]
PQI admissions—overall ²				
Year One (N = 21,561)	1.36	[-0.56, 3.27]	0.43	[-0.73, 1.60]
Year Two (N = 49,735)	0.03	[-2.85, 2.90]	1.02	[-0.08, 2.12]
Year Three (N = 50,605)	1.77*	[0.03, 3.51]	1.46	[-0.13, 3.04]
Overall (N = 59,524)	0.98	[-1.01, 2.98]	1.10	[-0.05, 2.25]
PQI admissions—acute ³				
Year One (N = 21,561)	0.25	[-1.09, 1.59]	-0.10	[-0.66, 0.45]
Year Two (N = 49,735)	-0.68	[-2.57, 1.21]	0.17	[-0.45, 0.80]
Year Three (N = 50,605)	-0.48	[-1.86, 0.91]	0.74	[-0.11, 1.60]
Overall (N = 59,524)	-0.43	[-1.85, 0.99]	0.36	[-0.15, 0.88]
PQI admissions—chronic ⁴				
Year One (N = 21,561)	1.03	[-0.18, 2.23]	0.63	[-0.28, 1.53]
Year Two (N = 49,735)	0.71	[-0.59, 2.01]	0.97*	[0.20, 1.73]
Year Three (N = 50,605)	2.06*	[1.04, 3.08]	0.86	[-0.24, 1.95]
Overall (N = 59,524)	1.33*	[0.40, 2.26]	0.86*	[0.03, 1.69]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a decrease in the rate of events compared with the CG. A *positive* value corresponds to an increase in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that the Maine PCMH Pilot increased the likelihood of preventable hospitalizations. Specifically, **Table 9-10** shows that:

- The *overall* likelihood of **avoidable catastrophic events** increased among Maine PCMH Pilot Medicare beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.
- The *overall* likelihood of **chronic PQI admissions** increased among Maine PCMH Pilot Medicare beneficiaries compared with beneficiaries assigned to either PMCH or non-PCMH comparison practices.

No statistically significant *overall* changes were observed in the measures of overall PQI admissions or acute PQI admissions.

9.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

Over the course of the MAPCP Demonstration, Maine PCMH Pilot practices reported making great gains in improving the quality of the care delivered to patients. Significant gains were made in systematically integrating tracking systems for identifying necessary and preventive services for patients, documenting services performed, providing outreach to patients, extracting EHR data to monitor progress in meeting quality benchmarks, and reviewing progress and informing the development of quality improvement activities. CCTs were also actively engaged in using quality of care data on their patients to guide decisions on services to provide patients needed care. Practices' assertions about engaging in quality improvement activities were confirmed by the provider survey in which nearly all Maine PCMH Pilot providers reported using systematic quality improvement approaches to meet organizational goals, along with tracking and following up with patients seen in the ER or hospital. Despite these efforts, there was little evidence of improvement in the quality of care and health outcomes metrics evaluated for both Medicare and Medicaid beneficiaries. In the few cases where there were significant findings, they suggested that the Maine PCMH Pilot was actually associated with lower likelihood of receiving evidence-based care (e.g., receipt of an HbA1c test among Medicare beneficiaries) and higher rates of preventable hospitalizations for chronic conditions.

Several reasons may explain the disconnect between the practices' reports of widespread quality improvement activities and the results from the claims analyses. First, some practices noted that changing patients' patterns of care takes time—and changing health takes even longer. Although practices improved their efforts to contact and bring in patients in need of evidence-based or preventive care, those efforts did not always correlate with immediate improvements in population-based quality metrics. Although we would expect more immediate improvements in the annual process of care measures, there may be a need for a longer evaluation period to demonstrate an association between participation in the Maine PCMH Pilot and significant overall positive changes in patient outcomes, as proxied by preventable hospitalizations for chronic conditions, for example. This is particularly true for the 50 Phase 2 expansion practices that entered the demonstration a year after the initial 25 practices. These practices only had 2 years of demonstration exposure, and they may have needed more time to implement practice improvements that would ultimately lead to improvements in quality of care and health outcomes.

9.4 Access to Care and Coordination of Care

This section describes the changes practices made aimed at improving access to care and the coordination of care (*Section 9.4.1*), impacts on access to care and coordination of care (*Section 9.4.2*), and a synthesis of these findings (*Section 9.4.3*).

9.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

Practice participation in the Maine PCMH Pilot had two requirements that significantly affected access to care throughout the demonstration. First, each Maine PCMH Pilot practice had to achieve NCQA PPC[®]-PCMH[™] recognition as a condition of participation. This implied compliance with the NCQA “must pass” elements regarding access during and after office hours, implementing a care management program, and tracking referrals and follow-up. Second, practices were required to achieve the 10 Core Expectations during the Maine PCMH Pilot. To measure progress in meeting the Core Expectations, participating practices completed a baseline self-assessment, with periodic, ongoing assessments during the project period. The Core Expectations for enhanced access to care included implementing systems changes, such as open scheduling, expanded hours, and new avenues of communication among patients, their personal physician, and office staff. Many participating practices had worked on implementing open-access scheduling and extended hours before their participation in the Maine PCMH Pilot to meet NCQA PPC[®]-PCMH[™] recognition requirements. In the first year, these practices worked on further improving access by implementing system changes to track to the third-next available appointment; make sure that same-day appointments were available; increase the percentage of time that patients see the same provider; and ensure that phones were answered during lunch hours.

Practices spoke of their continuing progress in the second year in improving access. One practice talked about sharing personnel between two sites to ensure constant access to care, whereas another practice used an urgent care center (with which they share their EHR) to extend hours on weekends. During the third year, practices continued their efforts and mentioned several new efforts to enhance access. Several practices discussed revising their scheduling protocol to open up slots for walk-in care during the day, improving same-day access, providing lunch hour and evening appointments, and making it easier for front office staff to know whether patients needed a regular or extended visit. One practice also monitored its next available appointments and used that information to guide decisions to expand or close providers’ patient panels. Consistent with site visit reports, the third-year provider survey (*Table 9-6*) confirmed Maine’s strong focus on access to care, with the overall percentage of access to care activities implemented being significantly higher (83%) than the eight-state MAPCP Demonstration average (77%).

Improvements in access did not go unnoticed by patients. Patients responding to the CAHPS PCMH survey found their providers to be accessible for urgent and routine care, with 91 percent of respondents stating that they can usually or always get an appointment for urgent care right away and 96 percent stating that they can usually or always get an appointment for a check-up or routine care as soon as they needed it. Focus group participants reported that they were generally able to get an appointment quickly for sick visits, although typically with a

provider other than their PCP. Most focus group participants did not mind seeing another provider, but a few felt that this was a problem. Several mentioned strategies that their practices used to make it easier to get an appointment when they needed it, including walk-in hours, weekend hours, and reserving some time slots each day for people who call in the morning. Several also said that if the condition was something urgent or painful, the staff at the front desk would find a way to work them in.

Survey respondents also saw little issue with the wait time, with 80 percent saying their appointment usually or always began within 15 minutes of its scheduled start time. The focus group participants also said that wait times were not typically a problem, with most participants having reported that wait times were very short—typically not more than 15 minutes.

Practices' efforts to connect patients with care after hours was corroborated to some extent, with 79 percent of survey respondents reporting that the primary care practice gave them information about what to do if care was needed during evenings, weekends, or holidays. However, only 61 percent felt that they usually or always got answers to medical questions from their practice after office hours, and 49 percent felt that they were usually or always able to get the care they needed from their practice during evenings, weekends, or holidays.

Patient portals as a means of alternative access was new at the beginning of the demonstration. Most practices activated an online patient portal in the first year, through which patients could request an appointment or prescription renewal, see laboratory results, or ask questions. Patient and provider comfort with using a portal increased over time, with some practices reporting usage by more than 50 percent of their patients. About two-thirds of focus group participants had heard of the patient portal at their practice, and about half of those who had heard of it had tried using it. Some who had used it were enthusiastic about it. A caregiver said she loved being able to communicate with her husband's provider: "If I don't know if I should take him to the doctor, I'll just write up all his symptoms, and then [the doctor will] say either, 'You need to come in,' or, 'It's fine, do this.' " Other participants mentioned using the portal to communicate with their provider, make appointments, get prescription refills, or look up test results. Some participants who had tried it found it difficult to use, however. For example, two said they could not get into it. Of those who had heard of it but had not used it, some said they felt no need for it because the current system worked well for them, they were "technology averse," or they did not have computers. Of the participants who had never heard of the portal, some thought it sounded interesting, but others were not interested.

Care coordination was also a significant focus of the Core Expectations. Practices were expected to identify a leader within the practice, use a team-based approach that expanded the roles of nonphysician staff, provide clearly identifiable roles and responsibilities for care management and other practice staff, and integrate care management staff into the practice team. Starting in the first year, many practices had augmented their in-house care coordination capabilities by establishing internal care teams and assigning specific staff to make sure that ordered consultations and laboratory tests had been done and to follow up with patients recently hospitalized or seen in the ER. Practices talked about implementing a system to get reports from hospitals on their patients who had been to the ER, admitted, or discharged, so they could contact their patients to coordinate follow-up care. Indeed, 94 percent of practices who took the provider survey reported routinely following up with patients seen in the ER or hospital after notification

from the ER or hospital, compared with 80 percent of providers across the eight MAPCP Demonstration states. Focus group participants corroborated this. Participants generally felt that their PCPs knew when they had been in the hospital. Several said that their provider called them within 24 hours of their hospital visit to follow up with them.

Discussion of coordination with other medical providers was not often discussed by site visit interviewees, but it was discussed during focus groups. Most focus participants reported that their PCPs received records from their specialists, although several reported instances in which their provider did not receive records. Several participants said that the transfer depended on whether providers were in the same system—the transfer was automatic if they were in the same system, but the patients had to request that the records be shared if they were not in the same system. Several participants commented that electronic records had helped a lot with the transfer of information between specialists and their PCP.

Some participants said that they found specialists on their own, but most said that their PCP referred them to specialists and often made the first appointment for them. Most of the participants in the dually eligible groups said that, according to the rules of MaineCare, they had to have a referral from their PCP to see a specialist. Some participants noted that it could take a long time to see a specialist, but one said he thought that he was able to get in faster because his PCP set it up.

Several practices talked about newly integrating care managers to identify high-risk or high-utilization patients and to coordinate those patients' care with their assigned CCT; 94 percent of providers completing the provider survey reported identifying patients for whom care management might be beneficial and coordinating that care management, compared with an average of 87 percent in the eight MAPCP Demonstration states. Despite these high levels, the role of the care manager and how that care manager was linked to the primary care practice appeared to be somewhat unclear among focus group participants. Only two participants, both of whom were dually enrolled in Medicare and Medicaid, reported having care managers provided by their primary care practice. Others reported having care managers provided by other sources, like community-based organizations.

Many practices used the EHR to create disease-specific registries (e.g., diabetes, asthma) and analyze the information to identify patients with gaps in care. In fact, 87 percent of providers completing the provider survey reported providing preventive screenings at specifically scheduled appointments and using registries and other tools to identify patients who have not received these services, compared with 78 percent of providers across the eight MAPCP Demonstration states. Providers made concerted efforts to address gaps while a patient was in the office or before a patient visit, whereas others also called patients and asked them to come in specifically to receive the identified services.

Practices interviewed in the third year of the demonstration continued their coordination of care efforts, implementing further coordination improvements. Multiple practices described their ongoing work in building a team model of care. Several practices hired nurses or MAs for panel management and care management. One practice received a grant from the state's SIM initiative to hire and train two community health workers to coordinate care for breast health and

asthma. Practices also used e-faxing or direct EHR communications with specialists to send and receive patient information on a timely basis.

Participating practices were expected to meet the Core Expectation of integrating behavioral and physical health as a means of enhancing care coordination. Practices discussed the progress made in integrating behavioral health care during site visits, primarily in Years Two and Three. One practice interviewed in the second year said that, before participating in the Maine PCMH Pilot, this integration was not even on their radar, but they since had colocated behavioral health services within the practice. As discussed in **Section 9.3.1**, Medicare FFS beneficiaries' responses to the CAHPS PCMH survey illustrate that some practices faced challenges in integrating behavioral health care. Practices that found it difficult to identify and develop working relationships with local behavioral health resources were able to avail themselves of technical assistance contracted by the Maine Quality Forum on their behalf. This technical assistance provided focused help in addressing behavioral health integration, including connecting practices with community-based support services for patients with behavioral health problems. Participating practices in the third year talked about their continued integration progress, including adding mental health professionals on staff, formalizing referral processes, and making use of technical assistance available to practices needing it. This integration was furthered by MaineCare's requirement to implement screenings for depression and substance abuse, as discussed in **Section 9.3**. Improved integration efforts over time were reflected in the provider survey, with 81 percent of providers completing the survey consistently referring patients in need of behavioral health support or community-based services to partners with whom the practice has established relationships compared with 64 percent of providers across the eight MAPCP Demonstration states.

CCTs were added to the Maine PCMH Pilot in January 2012 to provide support for the most complex, high-risk, high-need, and high-cost patients served by participating practices. CCTs worked with their assigned practices to identify those patients designated as having priority status and to develop appropriate care planning. In addition to receiving patient referrals from pilot practices, CCTs were expected to have agreements with local hospitals to obtain data on inpatient and ER admissions, preferably on a daily basis. Some CCTs embedded care managers in the hospital to work directly with discharge planning staff in identifying patients for follow-up care. Depending upon the size and scope of the CCT, services were available directly or through referral and included nurse care management, case/panel management, behavioral health and substance abuse services, psychiatric prescribing and pharmacy consultation for providers, medication review and reconciliation, oral health services, health coaching, and chronic disease self-management education and skill building. CCTs also linked patients to community organizations that offered a large variety of support services, including transportation, housing, literacy, self-management and healthy living, economic, and other assistance to meet basic needs.

Practices interviewed in the first year mentioned that an adjustment period was needed for both practices and CCTs to work through roles and processes. Once this adjustment had been worked through, practices provided positive feedback about the services CCTs provided. By the end of the first year, practices discussed how CCTs had enhanced the level of care provided by their practice. As one practice stated, "The CCT offers us the ability to expand care in a holistic manner and build trust, by increasing communication with the patient and connecting them with

resources that speak to their needs.” In the second and third Maine PCMH Pilot years, practices continued their positive feedback on the impact of CCTs. A significant change in the third year was the implementation of BHHOs in the Medicaid program to coordinate resources for adults with SMI and children with SED, removing them from CCT panels. A couple of participating practices and some CCTs expressed concern about the hand-off of patients from the CCT to the BHHO, because they had not been contacted by the BHHO to get a case history on the patient. To aid in the transition of patients and responsibilities, Quality Counts held regular meetings with the CCTs and BHHOs to resolve these issues and improve coordination among them.

9.4.2 Impacts on Access to Care and Coordination of Care

The Maine PCMH Pilot was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the Maine PCMH Pilot and two CGs for Medicare (PCMHs and non-PCMHs) and one CG for Medicaid (non-PCMHs).

- **Table 9-11** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care (COC) Index.
- **Table 9-12** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

PCMH comparison practices were excluded from the Medicaid analysis. There were relatively few PCMH CG practices (about 10% of the CG practice sample were PCMH practices), and the number of Medicaid beneficiaries attributed to those practices was low. The small sample size resulted in unstable estimates of change.

Maine PCMH Pilot beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under the Maine PCMH Pilot. For Medicare, these measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the Maine PCMH Pilot in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge rate was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. Further, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the Maine PCMH Pilot, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from 0 to 1. Maine PCMH Pilot beneficiaries were expected to have higher values on the COC Index. Due to limitations in the Medicaid claims data, the continuity of care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC Index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary

care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in *Section 9.4.3*.

Table 9-11
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 21,561)	-25.17	[-77.00, 26.67]	23.17	[-40.21, 86.55]
Year Two (N = 49,735)	25.43	[-48.03, 98.89]	75.92	[-1.79, 153.62]
Year Three (N = 50,605)	25.73	[-41.56, 93.01]	58.36	[-27.62, 144.33]
Overall (N = 59,524)	16.71	[-43.49, 76.91]	59.36	[-15.98, 134.70]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 21,561)	-41.09	[-85.45, 3.28]	-9.99	[-35.36, 15.39]
Year Two (N = 49,735)	-43.85*	[-84.18, -3.53]	-13.29	[-43.19, 16.61]
Year Three (N = 50,605)	-14.89	[-52.63, 22.85]	-17.06	[-51.29, 17.16]
Overall (N = 59,524)	-31.28	[-68.59, 6.04]	-14.29	[-43.18, 14.60]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 21,561)	-7.84	[-22.66, 6.99]	4.26	[-6.33, 14.85]
Year Two (N = 49,735)	-2.81	[-22.60, 16.97]	8.66	[-2.37, 19.69]
Year Three (N = 50,605)	3.64	[-16.75, 24.03]	11.64	[-1.96, 25.25]
Overall (N = 59,524)	-1.00	[-19.62, 17.62]	9.13	[-1.90, 20.16]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 33,710)				
1st quintile	-1.05	[-2.75, 0.64]	-1.66	[-4.29, 0.97]
5th quintile	0.80	[-0.42, 2.02]	1.32	[-0.62, 3.27]
Year Two (N = 25,992)				
1st quintile	-0.37	[-3.98, 3.25]	-1.53	[-4.38, 1.32]
5th quintile	0.30	[-2.59, 3.18]	1.26	[-0.95, 3.47]
Year Three (N = 8,762)				
1st quintile	-4.05*	[-8.11, 0.00]	-1.97	[-5.57, 1.63]
5th quintile	2.96*	[0.21, 5.72]	1.63	[-1.20, 4.47]
Overall (N = 38,844)				
1st quintile	-1.18	[-3.24, 0.88]	-1.65	[-4.38, 1.08]
5th quintile	0.88	[-0.67, 2.44]	1.34	[-0.72, 3.40]

(continued)

Table 9-11 (continued)
**Maine: Comparison of average MAPCP Demonstration effect estimates for access to care
and coordination of care among Medicare beneficiaries:**
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 2,670)	-10.84	[-123.91, 102.22]	37.58	[-23.38, 98.54]
Year Two (N = 6,246)	-92.43*	[-169.36, -15.49]	25.31	[-36.07, 86.70]
Year Three (N = 4,860)	-83.99*	[-150.43, -17.55]	-11.15	[-109.47, 87.17]
Overall (N = 11,405)	-73.44*	[-141.15, -5.73]	15.29	[-50.55, 81.12]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 3,341)	-58.36	[-126.73, 10.01]	-5.92	[-25.48, 13.65]
Year Two (N = 7,723)	-39.57	[-91.37, 12.23]	3.82	[-27.47, 35.11]
Year Three (N = 6,120)	-46.53	[-130.92, 37.85]	11.64	[-12.90, 36.18]
Overall (N = 13,924)	-45.68	[-104.43, 13.08]	4.55	[-17.85, 26.96]
COC Index (higher quintile = better continuity of care)				
Year One (N = 49,894)				
1st quintile	-4.51*	[-8.39, -0.63]	-0.49	[-2.50, 1.51]
5th quintile	3.76*	[1.07, 6.44]	0.49	[-1.49, 2.47]
Year Two (N = 38,350)				
1st quintile	-2.84*	[-4.76, -0.92]	-1.51	[-3.90, 0.89]
5th quintile	2.20*	[0.72, 3.67]	1.25	[-0.71, 3.21]
Year Three (N = 13,697)				
1st quintile	1.54	[-3.63, 6.70]	0.68	[-2.32, 3.68]
5th quintile	-1.17	[-5.24, 2.90]	-0.50	[-2.74, 1.74]

(continued)

Table 9-11 (continued)
**Maine: Comparison of average MAPCP Demonstration effect estimates for access to care
and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration**

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care) (continued)				
Overall (N = 52,790)				
1st quintile	-3.07*	[-5.20, -0.94]	-0.72	[-2.81, 1.38]
5th quintile	2.51*	[0.95, 4.06]	0.64	[-1.21, 2.49]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a decrease in the rate of events compared with the CG. A *positive* value corresponds to an increase in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a decrease in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice;
PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found little evidence that the Maine PCMH Pilot impacted the access to care and care coordination measures, with the exception of follow-up visits 14 days after discharge and continuity of care when Maine PCMH Pilot beneficiaries were compared with beneficiaries assigned to PCMH practices. Specifically, **Table 9-11** shows that:

- The *overall* rate of **follow-up visits within 14 days after discharge** decreased among Maine PCMH Pilot Medicare beneficiaries compared with beneficiaries assigned to PCMH practices.
- **Continuity of care**, as measured by concentration of visits, increased among Maine PCMH Pilot Medicare beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, the Maine PCMH Pilot decreased the *overall* likelihood that a demonstration beneficiary's COC Index was in the lowest quintile and increased the *overall* likelihood that the COC was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, and the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits; primary care visits as a percentage of total visits; and 30-day unplanned readmissions.

Table 9-12
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care
and coordination of care among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Primary care visits						
Year One	15,971	-1.13	[-5.31, 3.05]	15,712	-0.17	[-5.74, 5.41]
Year Two	25,209	0.36	[-3.33, 4.05]	27,309	3.93	[-1.49, 9.35]
Year Three	27,249	0.52	[-2.77, 3.81]	24,077	3.98	[-2.12, 10.09]
Overall	35,349	0.10	[-3.47, 3.66]	37,775	3.05	[-2.49, 8.59]
Medical specialist visits						
Year One	15,971	0.21	[-0.65, 1.06]	15,712	-0.32	[-1.56, 0.92]
Year Two	25,209	0.41	[-0.30, 1.12]	27,309	0.68	[-0.80, 2.16]
Year Three	27,249	0.35	[-0.34, 1.05]	24,077	0.83	[-0.76, 2.41]
Overall	35,349	0.34	[-0.35, 1.04]	37,775	0.51	[-0.88, 1.91]
Surgical specialist visits)						
Year One	15,971	0.19	[-0.21, 0.58]	15,712	0.46	[-0.14, 1.06]
Year Two	25,209	0.09	[-0.18, 0.35]	27,309	0.65	[-0.07, 1.36]
Year Three	27,249	0.08	[-0.26, 0.41]	24,077	0.47	[-0.10, 1.03]
Overall	35,349	0.10	[-0.20, 0.40]	37,775	0.54	[-0.04, 1.12]
Primary care visits as percentage of total visits (% PC)						
Year One						
% PC < 70%	N/A	N/A	N/A	9,864	-3.49	[-10.25, 3.27]
70% ≤ % PC < 100%		N/A	N/A		0.17	[-0.43, 0.78]
% PC = 100%		N/A	N/A		3.32	[-2.93, 9.56]
Year Two						
% PC < 70%	N/A	N/A	N/A	5,165	-0.34	[-11.50, 10.82]
70% ≤ % PC < 100%		N/A	N/A		0.03	[-0.95, 1.01]
% PC = 100%		N/A	N/A		0.31	[-9.87, 10.49]
Year Three						
% PC < 70%	N/A	N/A	N/A	1,325	3.14	[-5.55, 11.82]
70% ≤ % PC < 100%		N/A	N/A		-0.34	[-1.31, 0.62]
% PC = 100%		N/A	N/A		-2.79	[-10.56, 4.98]
Overall						
% PC < 70%	N/A	N/A	N/A	11,692	-1.96	[-9.80, 5.88]
70% ≤ % PC < 100%		N/A	N/A		0.09	[-0.58, 0.75]
% PC = 100%		N/A	N/A		1.87	[-5.33, 9.08]

(continued)

Table 9-12 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
30-day unplanned readmissions						
Year One	N/A	N/A	N/A	1,243	-1.14	[-4.82, 2.54]
Year Two	N/A	N/A	N/A	2,304	-4.69	[-10.18, 0.80]
Year Three	N/A	N/A	N/A	1,706	0.52	[-5.89, 6.93]
Overall	N/A	N/A	N/A	4,842	-2.18	[-6.86, 2.51]

NOTES:

- Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events occurring among Maine PCMH Pilot Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a decrease in the likelihood of events compared with the CG. A *positive* value corresponds to an increase in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported due to the low frequency of readmissions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults, no statistically significant *overall* impacts were observed in the likelihood of primary care visits, medical specialist visits, surgical specialist visits, primary care visits as a percent of total visits, and 30-day unplanned readmission rates, as shown in **Table 9-12**.

9.4.3 Discussion of Access to Care and Coordination of Care

Improving access to care and care coordination was a major focus of Maine PCMH Pilot practices. Practices' efforts to improve access to care through systematic changes included open-

access scheduling, expanded hours, and patients communicating with providers through online portals. These efforts were reflected in the results from the PCMH provider survey, which suggested that a higher share of Maine practices engaged in access to care activities compared with the average across all MAPCP Demonstration practices surveyed. In addition, the vast majority of CAHPS PCMH survey respondents and focus group participants said that they had timely access to urgent and routine care. Despite these findings, overall there was no evidence of changing patterns of primary care and specialty care use in the claims analysis for Maine PCMH Pilot beneficiaries enrolled in either Medicare or Medicaid compared with CGs. However, Medicare Maine PCMH Pilot beneficiaries showed a significant overall increase in continuity of care compared with the PCMH CG.

It is worth noting that some CG practices were part of what Maine PCMH Pilot staff have termed “high-performing” health systems that may have had their own initiatives that supported patient-centered activities. With additional support from their health system, some CG practices may have also been able to improve access for their patients over the period of the MAPCP Demonstration, which would limit our ability to detect significant changes in the quantitative measures.

Care coordination was enhanced by having practices adopt a team-based approach that expanded the roles of nonphysician staff, integrated care management staff, implemented systems to track tests and services ordered, and provided follow-up for patients who had been recently seen in a hospital or ER. CCTs were added to the Maine PCMH Pilot to provide support for the most complex, high-risk, high-need patients served by participating practices. Integration of the CCTs with the Maine PCMH Pilot practices was challenging, but over time, the CCTs were seen as an asset to providing patient-centered care. Although these efforts did not translate into significant positive changes in coordination of care measures, such as follow-up visits after hospital admission or 30-day readmission rates for both the Medicare and Medicaid populations, they did seem to resonate with some focus group participants who saw evidence that their PCPs knew about their hospitalizations and seemed to successfully facilitate access to and coordinate with medical specialists.

Perhaps the most significant challenge and growth area in coordinating care was the integration of behavioral health care within primary care practices, yet practices made significant improvements over time. Practices in Year One mentioned that this was something new on their radar, and practices in Year Three talked about adding mental health professionals on staff, formalizing referral processes with behavioral health care providers, and making use of technical assistance around behavioral health integration available to practices through Quality Counts. It is notable that by the end of the Maine PCMH Pilot, 81 percent of practices completing the PCMH provider survey reported consistently referring patients in need of behavioral health support or community-based services to partners, compared with 64 percent of providers across all eight MAPCP Demonstration states.

9.5 Beneficiary Experience with Care

This section describes the changes practices made that were aimed at improving Medicare and Medicaid beneficiaries’ overall experiences with care (*Section 9.5.1*); beneficiaries’ experiences with key aspects of their care, such as communicating with providers,

accessing care, getting help with self-managing their chronic conditions, and being involved in shared decision making about treatment (*Section 9.5.2*); and a synthesis of these findings (*Section 9.5.3*). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

9.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

Since its inception, the Maine PCMH Pilot has aimed to improve the patient experience by building trust between health care providers and patients and enhancing the quality and efficiency of care delivery. Beyond the major practice transformation elements common in all of the demonstration states, such as improving access and providing care coordination, the Maine PCMH Pilot took several steps that were unique and emphasized the importance of improving the beneficiary experience with care. First, the Maine PCMH Pilot provided staff training on improving patient communication, motivational engagement, and self-management. Second, each practice established a patient advisory council to receive direct feedback related to satisfaction. As examples, practices used feedback from their patient advisory councils to develop patient materials and newsletters, set office hours, and receive suggestions on how to improve communication. Feedback from practice councils was supplemented by data the practices received on their compliance with the 10 Core Expectations.

In the spring of 2012, Maine Quality Forum fielded the Clinicians and Group CAHPS patient experience survey. During the second year of the Maine PCMH Pilot, practices began to analyze this feedback, along with suggestions from their patient advisory councils, and address problems that were identified. As an outgrowth of the survey results and a means to enhance communication with patients, several practices started compiling a pre-visit checklist to identify tests or services that were due or key issues to discuss with the patient during his or her office visit. Other practices started preparing visit summaries for their patients. One provider said that the visit summaries were the most significant change in the practice, because it opened up communication by helping to create a mutual understanding between patients and providers. Several focus group participants mentioned that they found these printouts helpful. Practices also began using patient portals to enhance communication and satisfaction. One practice provided a course on communication for the office staff. Additional steps were taken to support patient-centered care by various practices, such as improved follow-up after ER care or admissions; free group education classes for patients with diabetes, asthma, and chronic pain; and encouragement of patient self-management of chronic conditions.

Practices continued to focus on improving the patient's experience in Year Three. The CCTs were now functioning effectively, and CCT nurses reported progress with their patients in terms of improved self-management, shared decision making, and health goal setting. The CCTs also began administering their own satisfaction surveys in Year Three.

The provider survey administered in Year Three found that Maine PCMH Pilot practices scored significantly below the MAPCP Demonstration eight-state average (63%) for having collaboratively developed care plans for patients with chronic conditions (52%). Maine PCMH Pilot plans were comparable to the MAPCP Demonstration eight-state average for the three other measures for assessing patient engagement and self-management: assessing patient and family

values and preferences, involving patients in health care decision making, and patient self-management activities.

9.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of the Maine PCMH Pilot. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. It should be noted that beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

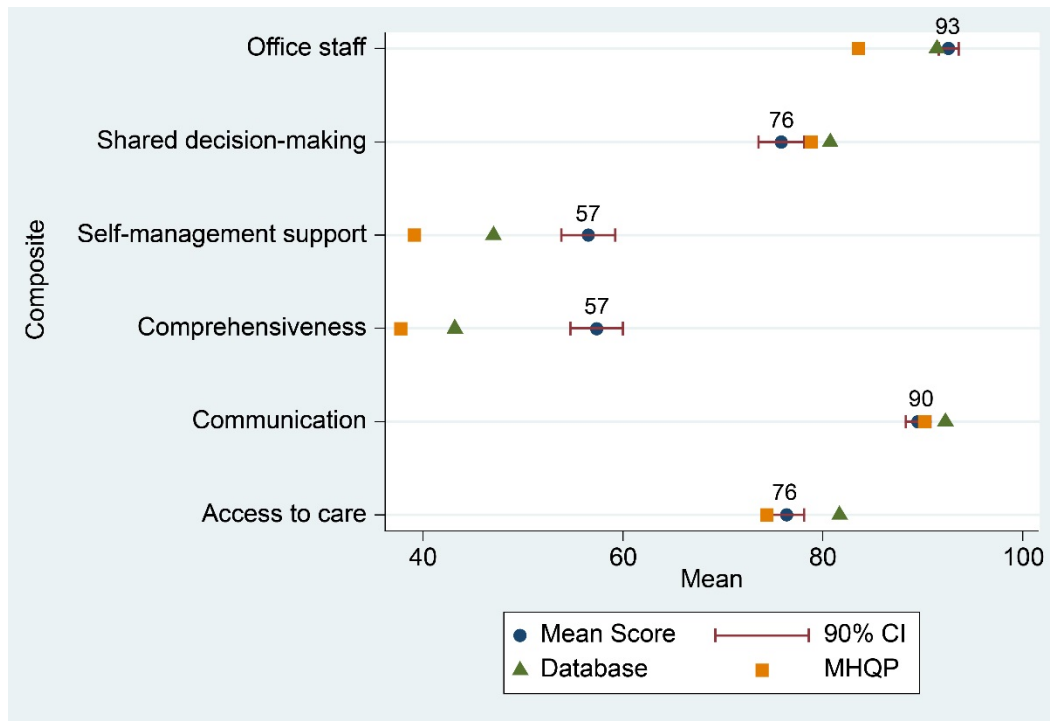
- *Communication with providers.* Six items regarding the quality of interactions with a PCP.
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner.
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems.
- *Self-management support.* Two yes/no questions about goal setting and barriers to care.
- *Shared decision-making.* Three items regarding medication use.
- *Office staff.* Two items about interactions with medical practice office staff.

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 9-2** contains the composite scales of Maine and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.¹⁰ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

Overall, Maine composite scores were higher than the CAHPS Database mean for two elements (self-management and comprehensiveness), marginally lower for three elements (shared decision making, communication, and access), and equivalent for one element (office staff).

¹⁰ The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The Database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study were the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 9-2
Maine's CAHPS PCMH survey composite measures compared with two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

Communication. On the basis of Medicare FFS beneficiaries' responses to our survey, Maine PCMH Pilot practices earned an adjusted score of 90 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (*Figure 9-2*). This composite reflects that:

- 96 percent of respondents felt that their providers usually or always knew the important information from their medical history.
- 97 percent believed that their providers usually or always listened carefully to them.
- 98 percent felt that their providers usually or always showed respect for what they had to say.
- 98 percent said that their providers usually or always explained things in a way that was easy to understand.
- 97 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns.
- 97 percent felt that their providers usually or always spent enough time with them.

Another related survey question revealed that 89 percent of Medicare FFS respondents said they spoke with someone from their provider's practice at each visit about all of the prescription medicines they were taking.

Our focus groups, which included Medicaid beneficiaries as well as Medicare FFS beneficiaries and their caregivers, yielded similarly positive findings. Below, we present focus group findings on the degree to which beneficiaries felt their provider understands them and effectively communicates with them.

Provider understands them. The vast majority of participants felt that their providers knew them and their medical history well, although a few noted that their provider may know them well simply because they have access to their records. As one said, "My doctor's computer knows me." Most participants appreciated a personal connection with their provider.

Effectiveness of communication. Most participants thought that communication with their providers was good: The provider listened to them and took as much time as was needed. Participants said their providers explained things in terms they understood. If they did not understand something, they just had to ask. One said, "If there is an area of uncertainty, there's never been a case where they're reluctant to spend a couple of minutes and say okay—they'll draw a diagram or whatever." A few participants commented that they thought having the provider type notes on the computer during the office visit detracted from the communication, saying that it felt like their provider was not listening as much and the typing disrupted the flow of the conversation. However, they did acknowledge that having their information in the system was beneficial.

A few participants were less positive about communication with their providers. Some reported feeling rushed, not heard, or limited in what they were allowed to discuss due to time restraints. A few caregivers were dissatisfied with the way the providers incorporated both them and the patient into their communication—either because the provider spoke exclusively to the patient and excluded the caregiver, or because they spoke exclusively to the caregiver and excluded the patient.

Access to care. On the basis of patients' responses to the CAHPS PCMH survey, Maine PCMH Pilot practices earned a weighted score of 78 out of 100 on a multiquestion composite scale that measures how easily patients can access their primary care practices (**Figure 9-2**).

Ease of getting an appointment. As discussed in **Section 9.4.1**, focus group participants were overall quite satisfied with their access to their PCP or their primary care practice. For routine appointments, participants said they generally scheduled them well in advance and did not have any difficulty getting an appointment. When they were sick and needed to come in for something unexpected, most participants felt that they could get an appointment quickly—often the same day—but typically not with their PCP.

Wait times. As discussed in **Section 9.4.1**, most focus group participants reported very short wait times that were typically not more than 15 minutes. A few participants said that if wait times were any longer than that, there was a good reason for it, and several said that they thought that wait times had gotten shorter in recent years.

Care coordination. In the Maine PCMH Pilot, care coordination often was linked with access to care, as CCTs often coordinated the access of high-risk, high-need patients to other medical and nonmedical services. The focus group participants discussed their experience with care managers, coordination observed between their primary care practices and local hospitals, and coordination observed with specialists.

Care managers. As discussed in **Section 9.4.1**, very few participants reported that their primary care practice provided a care manager or offered nonmedical support.

Coordination with hospitals. As described in **Section 9.4.1**, participants generally felt that their PCPs knew when they had been in the hospital.

Coordination with specialists. As described in **Section 9.4.1**, most participants reported that their PCPs facilitated appointments with specialists. They also reported that EHRs had made a positive impact on the transfer of records between their PCPs and specialists, particularly when providers were in the same system.

Self-management support. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, Maine PCMH Pilot practices earned a weighted score of 58 out of 100 on a multiquestion composite scale that assesses the degree to which practices offered patients self-management support (**Figure 9-2**). This composite reflects that:

- 67 percent of respondents had practice staff who talked to them about specific health goals.
- 45 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

Focus group participants noted several ways providers encouraged self-management of their health. Many said that their PCP talks to them about strategies for maintaining their health, including exercise, diet, and smoking cessation. A few participants commented that their PCP supported change, rather than badgered them about it, which they appreciated. As one said, "He tends to ask me about my lifestyle and then reinforce the things I am doing right, while gently pointing out areas where I could improve." A few participants mentioned that their PCPs had set them up with supports such as counselors, dietitians, or physical therapists.

Several participants said their PCP worked with them to set goals, such as losing a certain number of pounds per month, increasing the distance they walk, being able to walk upstairs, or reducing the number of medications they are taking. Other participants said that the PCP did not set goals with them—rather, the PCP referred them to specialists, and the specialists were the ones who set goals. Multiple participants said that their provider had referred them to a class, including diabetes classes when first diagnosed, a special diet class after a heart attack, and smoking cessation classes.

Shared decision making. Maine PCMH Pilot practices earned a score of 78 out of 100 on a composite that assesses the degree to which practices engage in shared decision making with patients (**Figure 9-2**). This composite reflects that:

- 90 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication.
- 77 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication.
- 78 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

In the focus group sessions, nearly all participants said that their providers respected their opinions and preferences and worked with them as partners to improve their health. Participants also credited their providers with making suggestions, rather than dictating, and explaining reasons behind their recommendations. Only a few participants felt that they did not share decision making with their provider. Two participants felt that their provider had an attitude of “I’m the doctor; you’re the patient.”

Office staff. Maine practices earned a score of 94 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks (*Figure 9-2*). When asked to give a global rating of their provider, 80 percent of Maine Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. Almost half (44 %) gave their provider the highest possible rating—10 out of 10.

Few of the focus group participants commented about the quality of the office staff at their practice. Those who did comment had mixed opinions, with some finding that the staff was helpful and others finding interaction with them difficult. A few participants said they had very positive experiences with nurses. One said that his provider’s nurse called “all the time” to make sure he was getting what he needed, and a caregiver said a nurse had gone “above and beyond” to arrange her brother’s trip to see a specialist in Boston.

9.5.3 Discussion of Beneficiary Experience with Care

The Maine PCMH Pilot was, to a large extent, an effort to improve the beneficiary’s experience with care by creating a partnership between patients and their providers. Patient advisory councils and the ongoing training provided by the Maine PCMH Pilot staff on improving patient communication, motivational engagement, and patient self-management were proactive approaches for increasing beneficiaries’ participation in their own health care. Both CAHPS PCMH survey responses and focus group discussions indicated high levels of satisfaction with the quality of communication between patients and providers. Focus group participants commonly noted providers encouraging self-management of their health through referrals to smoking cessation, stress management, and weight management programs and referrals to specialists, when needed. But responses to the CAHPS PCMH survey indicated that promoting self-management is an area in which provider growth could still occur. Approximately two-thirds of respondents had practice staff who talked with them about specific health goals, but less than half of respondents had staff that talked with them about things that made it hard for them to take care of their health.

9.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Maine was expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees' views on the likelihood of these savings materializing (*Section 9.6.1*), impacts on service utilization and expenditures (*Section 9.6.2* and *Section 9.6.3*), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 9.6.4*), and a synthesis of these findings (*Section 9.6.5*).

9.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

Through practice transformation and the integration of the CCTs to target high utilizers of health services, Maine expected to achieve budget neutrality for the MAPCP Demonstration through 6 percent and 7 percent reductions in hospitalization for respiratory and cardiovascular illness, respectively, and 5 percent reductions in ER use, specialist visits, standard imaging, advanced imaging, and ultrasound imaging.

Practice transformation was anchored in the 10 Core Expectations, several of which could be expected to lead to changes in utilization and expenditures, including practice-integrated care management; behavioral and physical health care integration; enhanced access to care; population risk stratification and management of patients at risk for adverse outcomes; and a commitment to reducing unnecessary health care spending, reducing waste, and improving cost-effective use of health services. Initiatives associated with these expectations that featured prominently over the course of the demonstration included: (1) developing processes for reaching out to and interacting with patients recently discharged from the hospital or ER to reduce future hospital or ER use; (2) adding new care team staff to assist with providing comprehensive and coordinated care; (3) using EHR data to perform gap analyses to identify members of their patient panel in need of evidence-based care and to target patient outreach to eliminate gaps, particularly in preventive care; and (4) integrating the CCTs into the practice to identify and provide intense care management to high utilizers to reduce their use of intensive health care services, such as the hospital and ER. Over the course of the MAPCP Demonstration, practices and CCTs alike reported increased integration with each other, which many CCT, practice, and state officials believed would lead to demonstrable reductions in unnecessary health care use. In the last year of the MAPCP Demonstration, BHHOs and Maine PCMH Pilot practices began integrating their care services for Medicaid patients (as discussed in *Section 9.2.1*). Practices and CCTs cited early challenges with implementation, such as poor coordination between CCTs and BHHOs for patients receiving services from CCTs who were subsequently transferred to a BHHO for care management. Several practice and CCT interviewees expressed concern that high rates of health care use among BHHO patients may not decline if the correct mix of care management services was not provided by the BHHO.

Many providers and CCT staff shared anecdotal evidence of reduced rates of ER visits and hospital admissions attributed to the care management staff of practices and CCTs and to patient follow-up after hospital discharge. They also offered anecdotal evidence of higher rates of evidence-based care in their patient populations, often attributed to identification of patients in need of this care through the EHRs and patient registries. Some state officials and providers, however, expressed concern that, despite the intense efforts of CCTs and care management services provided by the practice, inpatient and ER use would remain stubbornly high for some

high-risk, high-cost patients for several reasons. Patients often did not agree to engage in care management services, and, if they did agree to services, they may not have adopted and sustained the behavior change necessary to reduce high rates of utilization demonstrably. Further, behavior change is a time-intensive process, and the duration of the interaction between the care managers and the patient may not always have been sufficient. In fact, CCTs reported that engaging with and sustaining participation of these high utilizers was very challenging. They reported relatively low acceptance rates by patients to work with the CCTs, and the patient engagement of those who accepted varied from intensive, repeated contacts between a patient and the CCT to minimal interaction with the CCT. Another significant concern among site visit interviewees was the short duration of the MAPCP Demonstration; some providers noted that a 3-year demonstration would not be long enough to reduce utilization and expenditures significantly.

9.6.2 Impacts on Utilization and Expenditures

The Maine PCMH Pilot was expected to decrease the use of some services and increase the use of others. Overall, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the Maine PCMH Pilot and two CGs for Medicare (PCMHs and non-PCMHs) and one CG for Medicaid (non-PCMHs).

- **Table 9-13** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.
- **Table 9-14** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables. PCMH comparison practices were excluded from the analysis for Medicaid. There were relatively few PCMH CG practices (about 10% of the CG practice sample were PCMH practices), and the number of Medicaid beneficiaries attributed to those practices was low. The small sample size resulted in unstable estimates of change. Finally, not all services identified in the Medicare claims could be readily identified in the Medicaid claims, so we limited the analysis of Medicaid expenditures to total Medicaid, acute-care, ER, specialty care, primary care, prescription, and long-term care expenditures.

- **Table 9-15** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries.
- **Table 9-16** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries.

For Medicare, estimates in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the Maine PCMH Pilot in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A

negative value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the Maine PCMH Pilot, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 9.6.5**.

Table 9-13
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 21,561)	39.83	[-24.12, 103.77]	-5.16	[-52.22, 41.90]
Year Two (N = 49,735)	36.09	[-15.21, 87.39]	56.00*	[15.13, 96.88]
Year Three (N = 50,605)	46.84	[-6.46, 100.14]	81.84*	[43.32, 120.36]
Overall (N = 59,524)	41.23	[-6.13, 88.59]	56.10*	[20.04, 92.15]
Overall Aggregate	\$52,558,003		\$71,508,160*	
Acute care				
Year One (N = 21,561)	22.17	[-4.73, 49.06]	-11.31	[-35.06, 12.44]
Year Two (N = 49,735)	31.82*	[8.86, 54.77]	27.05*	[6.19, 47.92]
Year Three (N = 50,605)	19.62	[-0.83, 40.06]	40.13*	[23.23, 57.02]
Overall (N = 59,524)	25.03*	[4.40, 45.66]	25.80*	[9.56, 42.04]
Overall Aggregate	\$31,911,803*		\$32,892,352*	
Post-acute-care				
Year One (N = 21,561)	16.78*	[0.32, 33.23]	5.39	[-9.06, 19.85]
Year Two (N = 49,735)	5.93	[-12.71, 24.56]	6.69	[-2.00, 15.37]
Year Three (N = 50,605)	13.84	[-6.40, 34.07]	12.57*	[3.89, 21.24]
Overall (N = 59,524)	11.13*	[0.59, 21.66]	8.92*	[1.10, 16.73]
Overall Aggregate	\$14,183,361*		\$11,364,933*	

(continued)

Table 9-13 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 21,561)	0.05	[-5.24, 5.33]	-3.81	[-8.85, 1.23]
Year Two (N = 49,735)	-0.21	[-6.19, 5.77]	-2.12	[-6.17, 1.93]
Year Three (N = 50,605)	1.89	[-2.91, 6.68]	0.89	[-2.98, 4.75]
Overall (N = 59,524)	0.71	[-4.40, 5.82]	-1.16	[-5.05, 2.73]
Overall Aggregate	\$905,577		-\$1,476,947	
Outpatient				
Year One (N = 21,561)	10.28	[-8.34, 28.89]	5.67	[-4.25, 15.59]
Year Two (N = 49,735)	15.01	[-9.09, 39.11]	10.18*	[0.95, 19.41]
Year Three (N = 50,605)	21.51	[-3.18, 46.20]	7.25	[-4.26, 18.75]
Overall (N = 59,524)	16.90	[-3.86, 37.65]	8.17	[-1.00, 17.34]
Overall Aggregate	\$21,539,810		\$10,410,147	
Specialty physician				
Year One (N = 21,561)	-18.13	[-37.20, 0.94]	-0.58	[-6.67, 5.51]
Year Two (N = 49,735)	-15.19*	[-26.12, -4.26]	4.52	[-0.39, 9.43]
Year Three (N = 50,605)	-10.64	[-22.25, 0.97]	6.01*	[0.85, 11.17]
Overall (N = 59,524)	-13.80*	[-25.85, -1.76]	4.25	[-0.38, 8.88]
Overall Aggregate	-\$17,594,989*		\$5,416,442	
Primary care physician				
Year One (N = 21,561)	-0.27	[-5.14, 4.60]	-1.75	[-4.38, 0.89]
Year Two (N = 49,735)	-2.42	[-10.18, 5.33]	0.77	[-2.19, 3.74]
Year Three (N = 50,605)	-4.56	[-14.11, 5.00]	1.10	[-2.72, 4.92]
Overall (N = 59,524)	-2.94	[-10.86, 4.98]	0.47	[-2.69, 3.62]
Overall Aggregate	-\$3,745,950		\$598,343	
Home health				
Year One (N = 21,561)	-2.19	[-6.96, 2.57]	0.13	[-3.30, 3.56]
Year Two (N = 49,735)	-2.97	[-13.24, 7.31]	4.42*	[1.22, 7.61]
Year Three (N = 50,605)	0.86	[-7.16, 8.89]	8.50*	[4.69, 12.31]
Overall (N = 59,524)	-1.23	[-9.24, 6.78]	5.37*	[2.22, 8.52]
Overall Aggregate	-\$1,570,666		\$6,848,895*	
Other non-facility				
Year One (N = 21,561)	1.12	[-1.63, 3.86]	-0.75	[-3.21, 1.71]
Year Two (N = 49,735)	0.07	[-2.34, 2.48]	-0.46	[-2.70, 1.77]
Year Three (N = 50,605)	1.94*	[0.20, 3.69]	1.41	[-1.16, 3.99]
Overall (N = 59,524)	1.03	[-0.81, 2.87]	0.27	[-1.80, 2.34]
Overall Aggregate	\$1,318,817		\$344,735	

(continued)

Table 9-13 (continued)
Maine: Comparison of average MAPC Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Laboratory				
Year One (N = 21,561)	0.03	[-1.36, 1.42]	0.80	[-0.49, 2.09]
Year Two (N = 49,735)	-0.85	[-2.20, 0.50]	0.40	[-0.75, 1.55]
Year Three (N = 50,605)	-0.71	[-2.75, 1.33]	0.21	[-1.13, 1.56]
Overall (N = 59,524)	-0.64	[-2.18, 0.91]	0.39	[-0.74, 1.52]
Overall Aggregate	-\$810,468		\$500,282	
Imaging				
Year One (N = 21,561)	-0.90	[-2.28, 0.49]	0.10	[-0.55, 0.74]
Year Two (N = 49,735)	-0.57	[-1.64, 0.50]	-0.30	[-0.81, 0.20]
Year Three (N = 50,605)	-0.86	[-2.16, 0.44]	-0.33	[-0.92, 0.26]
Overall (N = 59,524)	-0.75	[-1.86, 0.37]	-0.25	[-0.71, 0.22]
Overall Aggregate	-\$953,939		-\$312,847	
Other facility				
Year One (N = 21,561)	-0.14	[-0.29, 0.02]	0.07	[-0.33, 0.47]
Year Two (N = 49,735)	-0.10	[-0.22, 0.02]	0.12	[-0.30, 0.53]
Year Three (N = 50,605)	-0.13	[-0.25, 0.00]	-0.02	[-0.51, 0.47]
Overall (N = 59,524)	-0.12	[-0.25, 0.01]	0.05	[-0.38, 0.48]
Overall Aggregate	-\$151,309		\$65,683	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique Maine PCMH Pilot beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that the Maine PCMH Pilot impacted some expenditure outcomes, although most impacts were not in the expected direction (e.g., acute-care expenditures increased), and there were inconsistencies in the statistical significance across CGs for some other measures. Specifically, **Table 9-13** shows that:

- The growth in *overall aggregate total Medicare expenditures* was \$71.5 million greater for beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate acute-care expenditures* was \$31.9 million greater for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH practices and \$32.9 million greater compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate post-acute-care expenditures* was \$14.2 million greater for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH practices and \$11.4 million greater compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate specialty physician expenditures* was \$17.6 million lower for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate home health expenditures* was \$6.8 million greater for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for expenditures for ER visits not leading to hospitalization, outpatient expenditures, primary care physician expenditures, other non-facility expenditures, laboratory expenditures, imaging expenditures, or other facility expenditures.

Table 9-14
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Total Medicaid						
Year One	15,971	-4.55	[-20.44, 11.34]	15,712	-3.84	[-29.33, 21.65]
Year Two	25,209	-3.87	[-17.81, 10.06]	27,309	-4.37	[-30.17, 21.44]
Year Three	27,249	-2.50	[-17.48, 12.49]	24,077	-13.70	[-55.78, 28.38]
Overall	35,349	-3.47	[-15.34, 8.40]	37,775	-7.64	[-36.20, 20.92]
Overall Aggregate		-\$2,273,673			-\$4,677,267	

(continued)

Table 9-14 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Acute care						
Year One	15,971	3.31	[-0.19, 6.80]	15,712	2.15	[-3.80, 8.10]
Year Two	25,209	-2.24	[-6.32, 1.84]	27,309	-1.12	[-8.07, 5.84]
Year Three	27,249	-4.77	[-10.31, 0.77]	24,077	-0.54	[-9.44, 8.35]
Overall	35,349	-2.03	[-6.13, 2.07]	37,775	-0.19	[-6.05, 5.67]
Overall Aggregate		-\$1,331,094			-\$115,237	
ER visits not leading to hospitalization						
Year One	15,971	1.30	[-0.30, 2.89]	15,712	0.74	[-2.30, 3.77]
Year Two	25,209	1.24	[-0.41, 2.89]	27,309	-0.03	[-2.62, 2.56]
Year Three	27,249	-0.20	[-2.33, 1.93]	24,077	0.60	[-2.38, 3.58]
Overall	35,349	0.68	[-1.07, 2.42]	37,775	0.37	[-2.16, 2.90]
Overall Aggregate		\$442,832			\$225,905	
Specialty physician						
Year One	15,971	0.08	[-0.55, 0.71]	15,712	0.26	[-0.89, 1.40]
Year Two	25,209	0.47*	[0.12, 0.83]	27,309	0.50	[-0.56, 1.56]
Year Three	27,249	0.14	[-0.32, 0.61]	24,077	-0.18	[-1.57, 1.22]
Overall	35,349	0.26	[-0.11, 0.62]	37,775	0.20	[-0.85, 1.25]
Overall Aggregate		\$167,401			\$123,706	
Primary care physician						
Year One	15,971	-2.78	[-10.95, 5.40]	15,712	-0.99	[-10.48, 8.50]
Year Two	25,209	-3.05	[-11.48, 5.39]	27,309	2.96	[-6.67, 12.59]
Year Three	27,249	-2.83	[-11.28, 5.62]	24,077	3.44	[-7.03, 13.90]
Overall	35,349	-2.90	[-11.24, 5.45]	37,775	2.26	[-7.57, 12.09]
Overall Aggregate		-\$1,899,971			\$1,386,096	
Prescription drugs						
Year One	15,971	-2.57*	[-4.61, -0.54]	15,712	-1.57	[-7.75, 4.61]
Year Two	25,209	-0.95	[-2.84, 0.94]	27,309	0.37	[-6.55, 7.30]
Year Three	27,249	-2.53	[-5.15, 0.08]	24,077	1.36	[-5.58, 8.31]
Overall	35,349	-1.94	[-3.90, 0.01]	37,775	0.30	[-5.83, 6.44]
Overall Aggregate		-\$1,273,810			\$185,640	

(continued)

Table 9-14 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Long-term care						
Year One	15,971	0.00	[-0.16, 0.15]	15,712	-0.10	[-0.35, 0.15]
Year Two	25,209	0.02	[-0.14, 0.17]	27,309	-0.08	[-0.33, 0.17]
Year Three	27,249	0.01	[-0.13, 0.16]	24,077	-0.13	[-0.38, 0.12]
Overall	35,349	0.01	[-0.14, 0.16]	37,775	-0.10	[-0.35, 0.15]
Overall Aggregate		\$7,487			-\$61,448	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults, no statistically significant *overall* impacts were observed for total Medicaid expenditures, acute-care expenditures, expenditures for ER visits not leading to hospitalization, specialty physician expenditures, primary care physician expenditures, prescription drug expenditures, or long-term care expenditures.

Table 9-15
Maine: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 21,561)	3.34	[-5.44, 12.12]	0.66	[-3.09, 4.42]
Year Two (N = 49,735)	1.62	[-9.67, 12.91]	5.57*	[1.42, 9.72]
Year Three (N = 50,605)	1.20	[-6.76, 9.15]	7.55*	[3.68, 11.41]
Overall (N = 59,524)	1.74	[-7.38, 10.87]	5.54*	[2.16, 8.91]
Overall Aggregate	741		2,353*	
ER visits not leading to hospitalization				
Year One (N = 21,561)	-3.80	[-21.58, 13.98]	-14.08*	[-25.79, -2.37]
Year Two (N = 49,735)	-11.14	[-27.99, 5.71]	-16.13*	[-28.00, -4.26]
Year Three (N = 50,605)	-10.44	[-29.48, 8.60]	-2.11	[-12.77, 8.55]
Overall (N = 59,524)	-9.56	[-26.75, 7.62]	-9.92	[-19.99, 0.16]
Overall Aggregate	-4,064		-4,214	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique Maine PCMH Pilot beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we only found evidence that the Maine PCMH Pilot changed the rate of all-cause admissions. Specifically, **Table 9-15** shows that:

- The *overall aggregate* number of **all-cause admissions** increased by 2,353 among Medicare beneficiaries assigned to the Maine PCMH Pilot compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries for ER visits not leading to hospitalization.

Table 9-16
Maine: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
All-cause admissions						
Year One	15,971	0.14*	[0.04, 0.25]	15,712	0.14	[-0.19, 0.47]
Year Two	25,209	-0.05	[-0.16, 0.06]	27,309	-0.08	[-0.45, 0.30]
Year Three	27,249	-0.14	[-0.30, 0.02]	24,077	-0.22	[-0.57, 0.12]
Overall	35,349	-0.04	[-0.16, 0.07]	37,775	-0.08	[-0.36, 0.20]
Overall Aggregate		-91			-168	
ER visits not leading to hospitalization						
Year One	15,971	1.21*	[0.43, 1.99]	15,712	0.60	[-0.60, 1.79]
Year Two	25,209	1.15*	[0.45, 1.86]	27,309	0.59	[-0.51, 1.69]
Year Three	27,249	0.42	[-0.32, 1.16]	24,077	0.89	[-0.14, 1.92]
Overall	35,349	0.87*	[0.22, 1.53]	37,775	0.70	[-0.26, 1.66]
Overall Aggregate		1,904*			1,431	
Low birth weight admissions						
Overall	868	-1.89	[-8.07, 4.29]	N/A	N/A	N/A
Overall Aggregate		-16				

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among Maine PCMH Pilot Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; DNC = regression model did not converge; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found little evidence that the Maine PCMH Pilot changed utilization, with the exception of ER visits not leading to hospitalization for children. Specifically, **Table 9-16** shows that:

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 1,904 among Medicaid child beneficiaries assigned to the Maine PCMH Pilot compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed among both child and adult beneficiaries for all-cause admissions and low birth weight admission.

9.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories analyzed across all eight MAPCP Demonstration states, we also analyzed categories in Maine’s demonstration application that the state specifically expected to be affected by the demonstration. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 9-17** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between beneficiaries assigned to Maine PCMH Pilot practices and two CGs in Medicare: PCMHs and non-PCMHs. **Table 9-17** contains measures of expenditures for hospital professionals, ER professionals, and office/home visits, as well as specific categories of utilization expected to be affected by the demonstration: hospitalizations for respiratory and cardiovascular illnesses, consultation visits, standard imaging, advanced imaging, and ultrasound imaging. Details on these measures can be found in **Appendix D**. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. A *negative* value corresponds to *lower growth* in expenditures, and a *positive* value corresponds to *greater growth*. Utilization estimates in this table are interpreted as the difference in the rate of utilization associated with the Maine PCMH Pilot per 1,000 beneficiary quarters. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG. Estimates are presented overall for all quarters of the demonstration.

Table 9-17
Maine: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 59,524)	2.33*	[0.67, 3.99]	2.49*	[0.88, 4.10]
ER professional expenditures Overall (N = 59,524)	0.09	[-0.71, 0.89]	0.84*	[0.17, 1.50]

(continued)

Table 9-17 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Office/home visit expenditures Overall (N = 59,524)	-14.08	[-29.61, 1.45]	-1.79	[-7.78, 4.21]
Hospitalization for respiratory illness Overall (N = 59,524)	-0.77	[-4.16, 2.62]	0.80	[-0.25, 1.85]
Hospitalization for cardiovascular illness Overall (N = 59,524)	0.47*	[0.04, 0.91]	0.30	[-0.01, 0.60]
Specialist visits (consultations) Overall (N = 59,524)	-44.64	[-175.31, 86.02]	-15.34	[-98.91, 68.22]
Standard imaging Overall (N = 59,524)	23.93*	[0.97, 46.89]	5.21	[-11.22, 21.64]
Advanced imaging Overall (N = 59,524)	-7.26	[-25.71, 11.18]	-3.81	[-8.61, 1.00]
Ultrasound imaging Overall (N = 59,524)	3.10	[-6.91, 13.10]	-0.60	[-8.14, 6.93]

NOTES:

- Expenditures for hospital professionals, ER professionals, and office/home visits are PBPM.
- Estimates for the first three outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Hospitalizations for respiratory and cardiovascular illness, specialist consultations, standard imaging, advanced imaging, and ultrasound imaging are rates per 1,000 beneficiary quarters.
- Estimates for the last six outcomes in this table are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that the Maine PCMH Pilot Demonstration impacted some targeted expenditure and utilization outcomes, although only the impact on hospital professional expenditures was consistently observed across CGs, and the estimate indicated a modest increase in expenditures. Specifically, **Table 9-17** shows that:

- The *overall* growth in **hospital professional expenditures** was greater for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH or non-PCMH practices.
- The *overall* growth in **ER professional expenditures** was greater for Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to non-PCMH practices.
- The *overall* estimate indicates that the rate of **hospitalizations for cardiovascular illness and standard imaging** decreased among Medicare beneficiaries assigned to Maine PCMH Pilot practices compared with beneficiaries assigned to PCMH practices.

9.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Maine relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics—gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, and net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in *Table 9-13* from *Section 9.6.2*. (See *Appendix C* for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from *Table 9-13*. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP fees. Positive net savings estimates denote that either there were gross losses or the MAPCP fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 9-18 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 12 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 9-18
Maine: Estimates of gross savings, fees paid, net savings, and return on fees

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	−\$8,878,433	−\$23,134,051	\$5,377,185	\$2,180,744	−\$11,059,177	−\$25,314,795	\$3,196,442	−4.07
Year Two	−\$18,749,482	−\$45,402,683	\$7,903,718	\$5,014,916	−\$23,764,399	−\$50,417,600	\$2,888,802	−3.74
Year Three	−\$24,930,088	−\$53,300,846	\$3,440,670	\$5,117,921	−\$30,048,009*	−\$58,418,767	−\$1,677,250	−4.87
All Years	−\$52,558,003	−\$112,935,196	\$7,819,189	\$12,313,581	−\$64,871,584*	−\$125,248,776	−\$4,494,392	−4.27
Relative to non-PCMH comparison beneficiaries								
Year One	\$1,150,511	−\$9,340,096	\$11,641,117	\$2,180,744	−\$1,030,233	−\$11,520,839	\$9,460,374	0.53
Year Two	−\$29,096,292*	−\$50,331,228	−\$7,861,356	\$5,014,916	−\$34,111,209*	−\$55,346,144	−\$12,876,273	−5.80
Year Three	−\$43,562,379*	−\$64,064,999	−\$23,059,759	\$5,117,921	−\$48,680,300*	−\$69,182,920	−\$28,177,680	−8.51
All Years	−\$71,508,160*	−\$117,466,839	−\$25,549,482	\$12,313,581	−\$83,821,741*	−\$129,780,419	−\$37,863,063	−5.81

NOTE:

Gross Savings: Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.

Net Savings: The estimate of gross savings minus the total Medicare fees paid.

Fees: Beneficiaries with less than 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.

Return on Fees: The estimate of gross savings divided by total Medicare fees paid.

PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

SOURCE: Medicare claims 2012:Q1–2014:Q4.

In the analysis of budget neutrality relative to the PCMH CG, *Table 9-18* shows:

- The MAPCP Demonstration in Maine resulted in an estimated gross loss of \$52,558,003 for Medicare. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$12,313,581, which translates into an estimated net loss of \$64,871,584 with a 90 percent confidence interval that extended from \$4.5 million to \$125.2 million.
- Estimates of gross loss failed to achieve statistical significance in any individual year of the demonstration, but estimates of net losses were statistically significant in Year Three.

In the analysis of budget neutrality relative to the non-PCMH CG, *Table 9-18* shows:

- The MAPCP Demonstration in Maine resulted in an estimated gross loss of \$71,508,160 for Medicare with a 90 percent confidence interval that extended from \$25.5 million to \$117.4 million.
- Total fees paid out on the basis of the demonstration were \$12,313,581, which translates into an estimated net loss of \$83,821,741 with a 90 percent confidence interval that extended from \$37.8 million to \$129.8 million.
- Estimates of gross and net loss were statistically significant in Years Two and Three.

9.6.5 Discussion of Effectiveness

The 10 Core Expectations for practices that participated in the Maine PCMH Pilot were the foundation for implementing practice transformation efforts to reduce unnecessary utilization and expenditures. A strong focus on care management (particularly after discharge from the hospital or ER), the use of medical record data to identify gaps in needed care, and partnerships with CCTs to identify and work with high utilizers were employed routinely by practices to affect beneficiaries' use of health care services. Many providers and CCT staff shared anecdotal evidence of reduced rates of ER use not leading to hospitalization and hospital admissions and higher rates of evidence-based care in their patient populations. The expectation was that reduced high-dollar utilization may have translated into reductions in the growth of Medicare and Medicaid expenditures.

In Medicare and Medicaid, however, there was no evidence of consistent trends in reductions in all-cause admissions and ER visits. In fact, there was some suggestion of increased rates of inpatient admissions for Maine PCMH Pilot Medicare beneficiaries when compared with a non-PCMH CG and an increase in the likelihood of ER visits for Maine PCMH Pilot children enrolled in Medicaid compared with a non-PCMH CG of Medicaid children. Our findings related to total Medicare and Medicaid expenditures also did not align with expectations. In Medicare, we found that total expenditures, acute-care expenditures, and post-acute-care expenditures were growing at a higher rate for Maine PCMH Pilot beneficiaries compared with beneficiaries

assigned to a non-PCMH CG, but this trend was not observed when in comparison with the PCMH CG. We also found that some categories of expenditures of particular interest to the state also saw greater growth for the Maine PCMH Pilot group (e.g., hospital professional expenditures and standard imaging). In Medicaid, we did not see the same growth in costs among the Maine PCMH Pilot beneficiaries that we saw in Medicare. There were often negative point estimates for expenditures, which suggested lower growth in expenditures relative to the CG, yet none of the results were statistically significant. High variability in medical expenditures may have contributed to the absence of statistically significant findings for expenditures.

Commensurate with the quantitative results showing no reductions in cost growth among Medicare beneficiaries in the Maine PCMH Pilot, we estimated that there were losses—not savings—to Medicare. There was a \$52.6 million loss when compared with costs of care for the PCMH CG, though the amount is not statistically significantly different from zero. However, the \$71.5 million estimated loss when compared with the non-PCMH CG was statistically significantly different from zero. The results were consistent with the fact that the Medicare costs per beneficiary were generally higher among the Maine PCMH Pilot beneficiaries compared with the comparison beneficiaries across the demonstration period.

Obvious reasons for greater growth in key Medicare expenditure categories and no significant changes in Medicaid expenditures relative to the CG(s) are not readily apparent, but one consideration is that although we could control for certain practice-level characteristics in regression analyses, we could not control for unknown factors, such as the practice transformation initiatives that may have been under way in CG practices. Some CG practices were part of what Maine PCMH Pilot staff have termed “high-performing” health systems that may have had their own initiatives supporting patient-centered or cost containment activities. Further, some were preparing for NCQA PCMH recognition, and several CG practices received NCQA PCMH recognition after the conclusion of the evaluation period. Furthermore, Maine’s Medicaid Health Homes initiative began in 2013, contributing to a general climate of primary care transformation in Maine. Given this context, it is possible that some CG practices may have been equally successful at reducing cost growth as some Maine PCMH Pilot practices. Another possibility is the role of improved access to care. Many providers interviewed suggested that their patients had better access to care over the course of the Maine PCMH Pilot, although significant changes in the access to care measures reported in **Section 9.4.2** did not necessarily support these assertions. Finally, interviewees from site visits often suggested that changing patterns of care for a majority of people would take more time than afforded by the 2 or 3 years that practices participated in the demonstration.

9.7 Special Populations

This section describes any efforts by practices or the overall Maine PCMH Pilot to target special patient populations (according to our interviews) (**Section 9.7.1**); impacts on special patient populations’ expenditures, care quality, health outcomes, and service utilization (based on claims data) (**Section 9.7.2**); and a synthesis of these findings (**Section 9.7.3**).

9.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

The Maine PCMH Pilot did not explicitly target any subpopulation for tailored interventions but did focus special attention on high-risk patients and people with behavioral or mental health problems.

Patients identified as being at high risk or those who are high utilizers of health services. CCTs were introduced specifically to work with providers in addressing the care coordination and care management needs of patients with high rates of ER and inpatient use. Maine developed a risk stratification plan in Year One with criteria for identifying patients with high risk or high utilization that was focused on the frequency of ER and inpatient use, the presence of multiple chronic conditions, polypharmacy, and high social service needs affecting medical care. The expectation was that, with the CCTs' help, these patients would be able to reduce their use of health care services, including inpatient and ER use. In Year One, CCTs and providers had significant flexibility in considering additional factors, so patients who appeared to have had an immediate need but perhaps did not meet the risk stratification criteria could potentially be referred for CCT services. In Years Two and Three, Quality Counts worked closely with providers and CCTs to standardize the criteria and identify the top 5 percent of health care utilizers for CCT referral. Throughout the Maine PCMH Pilot, a significant number of patients referred for CCT services were dually eligible for Medicare and Medicaid. A significant issue that arose with CCTs was a refusal rate of 42 percent to 47 percent by patients referred for services by providers, limiting their impact in the Maine PCMH Pilot.

People with behavioral or mental health problems. Throughout each year of the Maine PCMH Pilot, practices worked on improving the integration of primary care with behavioral health care to address patients' needs, with practices required to implement annual depression and substance abuse screening in Year Three. Practices throughout the pilot added new staff (part-time psychologists or embedded clinical social workers) to address this need and sometimes referred patients with behavioral and mental health problems to CCTs. In April 2014, MaineCare transitioned from CCTs to BHHOs for Medicaid patients with serious behavioral problems and mental illness (see *Section 9.1.1* for more information about BHHOs).

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. The Maine PCMH Pilot targeted beneficiaries with behavioral health issues through one of the 10 Core Expectations—integration of primary care and behavioral health care. Maine PCMH Pilot practices were expected to integrate mental and behavioral health services with primary care to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse disorders. Further, the CCTs were expected to help link their high-cost, high-utilization patients with behavioral health services if needed. In addition, the introduction of BHHOs for Medicaid beneficiaries with significant behavioral issues also was expected to improve access to and utilization of behavioral health services for this population. Improved integration of physical and behavioral health services was expected to

improve access to and coordination of behavioral health services, which could increase use of outpatient behavioral health services and primary care visits. More appropriate use of outpatient care could lead to decreases in rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

In addition to the focus on high-risk, high-need patients and those with behavioral health conditions, many providers tailored services toward those whose native language was not English. Although limited-English-proficiency patients were not an explicit special population, many providers used computer translation programs or scheduled longer visits with non-English-speaking patients to accommodate translation time.

9.7.2 Impacts on Special Populations

The Maine PCMH Pilot was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, with behavioral health conditions, with disabilities, or with a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid, who live in rural areas, or who belong to racial or ethnic minorities).

For these special populations where we find a statistically significant negative association between the Maine PCMH Pilot and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 9-19** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 9-20** reports on changes in total Medicaid expenditures for the special populations expected to be affected by the demonstration.
- **Table 9-21** reports on changes in expenditures and utilization for disabled Medicaid children.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables. PCMH comparison practices were excluded from the Medicaid analysis. There were relatively few PCMH CG practices (about 10% of the CG practice sample were PCMH practices), and the number of Medicaid beneficiaries attributed to those practices was low. The small sample size resulted in unstable estimates of change. For dually eligible beneficiaries, we only examined total Medicare

spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending.

For Medicare, estimates for the utilization measures in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the Maine PCMH Pilot in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

- **Tables 9-22 through 9-30** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 9-31 through 9-34** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 9.7.3**.

Table 9-19
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 5,746)	170.80*	[74.79, 266.81]	-95.16	[-229.65, 39.34]
Year Two (N = 12,591)	161.26	[-59.78, 382.30]	125.03*	[6.87, 243.19]
Year Three (N = 11,265)	116.71*	[14.05, 219.36]	247.91*	[150.52, 345.29]
Overall (N = 14,402)	145.85*	[15.97, 275.73]	130.35*	[35.47, 225.23]
Overall Aggregate	\$45,161,987*		\$40,362,508*	

(continued)

Table 9-19 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health conditions only				
Year One (N = 5,648)	100.75	[-10.50, 212.00]	-38.40	[-145.30, 68.51]
Year Two (N = 11,884)	21.81	[-80.21, 123.82]	29.04	[-44.27, 102.35]
Year Three (N = 11,243)	-10.04	[-92.46, 72.38]	129.30*	[53.55, 205.04]
Overall (N = 14,053)	24.33	[-53.49, 102.14]	55.98	[-10.53, 122.49]
Overall Aggregate	\$7,232,300		\$16,643,891	
Disabled beneficiaries only				
Year One (N = 8,504)	63.72*	[3.91, 123.53]	-39.92	[-114.31, 34.47]
Year Two (N = 19,441)	3.87	[-62.84, 70.59]	31.09	[-25.74, 87.91]
Year Three (N = 19,827)	-39.76	[-107.04, 27.52]	83.61*	[28.85, 138.37]
Overall (N = 23,555)	-3.89	[-58.00, 50.21]	40.62	[-8.32, 89.56]
Overall Aggregate	-\$1,921,546		\$20,041,856	
Dually eligible beneficiaries only				
Year One (N = 10,216)	76.03*	[17.55, 134.52]	-23.66	[-102.30, 54.98]
Year Two (N = 23,565)	80.12	[-5.91, 166.14]	65.01*	[4.53, 125.49]
Year Three (N = 23,443)	-4.02	[-68.33, 60.28]	110.27*	[57.96, 162.59]
Overall (N = 27,961)	44.69	[-20.90, 110.28]	68.04*	[15.15, 120.93]
Overall Aggregate	\$26,590,164		\$40,484,595*	
Rural beneficiaries only				
Year One (N = 5,819)	98.77*	[51.62, 145.92]	-52.94	[-129.31, 23.42]
Year Two (N = 18,641)	96.74*	[40.34, 153.14]	23.80	[-34.56, 82.17]
Year Three (N = 19,213)	122.80*	[12.17, 233.44]	107.40*	[57.08, 157.72]
Overall (N = 21,937)	108.51*	[63.56, 153.47]	50.57	[-1.18, 102.31]
Overall Aggregate	\$49,740,877*		\$23,178,650	

(continued)

Table 9-19 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Non-White beneficiaries only				
Year One (N = 421)	10.00	[-170.75, 190.76]	-31.26	[-169.65, 107.13]
Year Two (N = 1,055)	-2.83	[-228.06, 222.40]	114.54	[-10.75, 239.82]
Year Three (N = 1,213)	136.33	[-15.20, 287.86]	172.84*	[20.03, 325.65]
Overall (N = 1,405)	62.49	[-101.88, 226.86]	118.80*	[21.81, 215.80]
Overall Aggregate	\$1,671,525		\$3,177,913*	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique Maine PCMH Pilot-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we found no evidence that the Maine PCMH Pilot slowed the growth of total Medicare expenditures. In many of these special populations, there were significant increases in the growth of total Medicare expenditures. Specifically, **Table 9-19** shows that:

- Among Medicare **beneficiaries with multiple chronic conditions**, the growth in *overall aggregate* total Medicare expenditures was \$45.2 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH practices and \$40.4 million greater compared with beneficiaries assigned to non-PCMH practices.
- Among **dually eligible beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$40.5 million greater when beneficiaries attributed to Maine PCMH Pilot practices were compared with beneficiaries assigned to non-PCMH practices.
- Among **rural beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$49.7 million greater when beneficiaries attributed to Maine PCMH Pilot practices were compared with beneficiaries assigned to PCMH practices.
- Among **non-White beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$3.18 million greater when beneficiaries attributed to Maine PCMH Pilot practices were compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts of Maine PCMH Pilot on total Medicare expenditures were observed among disabled beneficiaries or beneficiaries with behavioral health conditions assigned to Maine PCMH Pilot practices compared with similar beneficiaries in either PCMH or non-PCMH practices.

Table 9-20
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicaid expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Multiple chronic conditions only						
Year One	N/A	N/A	N/A	15,712	-0.76	[-26.01, 24.50]
Year Two	N/A	N/A	N/A	27,309	-4.62	[-29.36, 20.12]
Year Three	N/A	N/A	N/A	23,561	-14.93	[-56.70, 26.84]
Overall	N/A	N/A	N/A	37,259	-7.49	[-35.12, 20.14]
Overall Aggregate					-\$1,483,525	

(continued)

Table 9-20 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicaid expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Behavioral health conditions only						
Year One	555	-75.67	[-308.85, 157.50]	2246	136.12*	[17.44, 254.80]
Year Two	991	-185.71	[-441.25, 69.83]	4035	47.97	[-88.68, 184.62]
Year Three	1076	-34.75	[-298.59, 229.09]	3598	-29.97	[-156.59, 96.65]
Overall Overall Aggregate	1,340	-100.27 -\$2,545,038	[-327.04, 126.50]	5,485	37.96 \$3,557,239	[-76.85, 152.77]
Disabled beneficiaries only						
Year One	581	-393.40*	[-663.76, -123.05]	2,108	-78.15	[-304.93, 148.64]
Year Two	897	-406.26*	[-647.88, -164.65]	3,965	-50.04	[-315.63, 215.54]
Year Three	949	-227.46	[-470.80, 15.88]	4,280	-85.15	[-274.75, 104.45]
Overall Overall Aggregate	1,148	-332.83* -\$8,327,308*	[-541.40, -124.25]	5,161	-70.19 -\$7,491,154	[-284.47, 144.09]
Asthma diagnosis only						
Year One	742	-78.78	[-166.28, 8.72]	890	7.19	[-162.94, 177.32]
Year Two	1,294	12.25	[-80.38, 104.88]	1,689	82.53	[-63.48, 228.55]
Year Three	1,424	18.61	[-75.46, 112.68]	1,594	79.26	[-59.69, 218.20]
Overall Overall Aggregate	1,710	-3.84 -\$136,342	[-82.42, 74.74]	2,297	66.22 \$2,702,056	[-63.94, 196.37]
Rural beneficiaries only						
Year One	6,058	-12.12	[-33.31, 9.06]	6,509	-4.07	[-40.30, 32.16]
Year Two	11,353	-9.01	[-27.25, 9.22]	14,162	2.17	[-30.81, 35.16]
Year Three	12,322	-6.36	[-25.39, 12.68]	12,501	-13.31	[-71.79, 45.18]
Overall Overall Aggregate	16,023	-8.50 -\$2,407,825	[-24.06, 7.05]	19,133	-4.87 -\$1,477,753	[-42.24, 32.49]

(continued)

Table 9-20 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicaid expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Non-White beneficiaries only						
Year One	4,051	24.70	[-3.26, 52.67]	2,385	6.79	[-30.65, 44.24]
Year Two	6,759	25.52	[-1.63, 52.67]	4,214	-20.75	[-63.22, 21.71]
Year Three	7,637	8.91	[-20.10, 37.92]	3,701	22.35	[-31.13, 75.83]
Overall	9,940	18.40	[-6.17, 42.97]	6,063	0.96	[-35.62, 37.53]
Overall Aggregate		\$3,165,550			\$85,936	

NOTES:

- All measures are PBPM expenditures.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children belonging to these special populations, we found no evidence that the Maine PCMH Pilot slowed the growth of total Medicaid expenditures, except for among disabled children. Among Medicaid adults belonging to these special populations, we found no evidence that Maine PCMH Pilot slowed the growth of total Medicaid expenditures. Specifically, **Table 9-20** shows that:

- Among **disabled children** enrolled in Medicaid, the *overall* growth in Medicaid expenditures was \$8.3 million lower for beneficiaries assigned to Maine PCMH Pilot practices than among disabled children assigned to non-PCMH practices.
- Among Medicaid children, no statistically significant *overall* impacts of the Maine PCMH Pilot on total Medicaid expenditures were observed among beneficiaries with behavioral health conditions, beneficiaries with asthma, rural beneficiaries, or non-White beneficiaries.

Among Medicaid adults, no statistically significant *overall* impacts of the Maine PCMH Pilot on total Medicaid expenditures were observed among beneficiaries with multiple chronic

conditions, beneficiaries with behavioral health conditions, beneficiaries with asthma, disabled beneficiaries, beneficiaries with asthma, rural beneficiaries, or non-White beneficiaries.

For these special populations where we find a statistically significant negative association between the Maine PCMH Pilot and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

Table 9-21 shows that the lower growth in total Medicaid expenditures among disabled children who are Medicaid beneficiaries could not be explained by reductions in the growth of acute-care expenditures, expenditures for ER visits not leading to a hospitalization, specialty physician expenditures, primary care physician expenditures, fewer all-cause admissions, or ER visits not leading to hospitalization.

Table 9-21
Maine: Comparison of average MAPCP Demonstration effect estimates for
selected expenditure and utilization measures among disabled Medicaid beneficiaries
who are children:
Twelve quarters of the MAPCP Demonstration

Outcome	Children		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Total Medicaid expenditures			
Year One	581	−393.40*	[−663.76, −123.05]
Year Two	897	−406.26*	[−647.88, −164.65]
Year Three	949	−227.46	[−470.80, 15.88]
Overall	1,148	−332.83*	[−541.40, −124.25]
Overall Aggregate		−\$8,327,308*	
Acute-care expenditures			
Year One	581	−51.52*	[−98.40, −4.65]
Year Two	897	−31.79	[−65.07, 1.49]
Year Three	949	−19.78	[−78.08, 38.52]
Overall	1,148	−31.55	[−67.44, 4.33]
Overall Aggregate		−\$789,503	
ER visits not leading to hospitalization expenditures			
Year One	581	−1.83	[−13.55, 9.90]
Year Two	897	4.69	[−0.73, 10.12]
Year Three	949	−1.58	[−12.46, 9.31]
Overall	1,148	0.73	[−7.60, 9.07]
Overall Aggregate		\$18,358	
Specialty physician expenditures			
Year One	581	−2.42	[−5.77, 0.94]
Year Two	897	2.65	[−0.08, 5.39]
Year Three	949	0.65	[−3.08, 4.38]
Overall	1,148	0.71	[−1.87, 3.29]
Overall Aggregate		\$17,730	

(continued)

Table 9-21 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
selected expenditure and utilization measures among disabled Medicaid beneficiaries
who are children:
Twelve quarters of the MAPCP Demonstration

Outcome	Children		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Primary care physician expenditures			
Year One	581	-4.87	[-17.92, 8.18]
Year Two	897	-3.66	[-17.87, 10.56]
Year Three	949	-0.67	[-15.65, 14.32]
Overall	1,148	-2.76	[-16.83, 11.32]
Overall Aggregate		-\$68,938	
All-cause admissions			
Year One	581	-1.72	[-4.60, 1.16]
Year Two	897	-0.73	[-2.25, 0.78]
Year Three	949	-0.96	[-2.86, 0.94]
Overall		-1.05	[-2.88, 0.79]
Overall Aggregate	1,148	-8,729	
ER visits not leading to a hospitalization			
Year One	581	0.58	[-2.92, 4.08]
Year Two	897	2.37	[-0.35, 5.09]
Year Three	949	1.16	[-2.19, 4.50]
Overall		1.48	[-1.37, 4.34]
Overall Aggregate	1,148	12,382	

NOTES:

- Total, acute-care, ER, primary care, and specialty care expenditure measures are PBPM expenditures. Estimates are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- All-cause admissions and ER visits not leading to a hospitalization are quarterly, dichotomous (yes/no) outcomes. Estimates are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group is defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the

chronic conditions and the CMS-HCC risk category can be found in *Appendix D*. Over the 12 quarters of the demonstration, 22 percent of MAPCP Demonstration Medicare beneficiaries (demonstration and CG) fit this profile in Maine. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into the Maine PCMH Pilot (or CG). Over the course of the demonstration, 28 percent of adult Medicaid beneficiaries (demonstration and CG) fit this profile. Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

Maine's CCTs targeted patients in the top 5 percent of spending or utilization for services, as well as other patients deemed in need of CCT assistance. These individuals also had multiple chronic conditions. Due to data privacy rules, Maine was unable to share identifying information on CCT enrollees for the federal evaluation. Therefore, for Maine's analysis, we defined Medicare and Medicaid beneficiaries with multiple chronic conditions as we did in the other MAPCP Demonstration states (definitions described in the previous paragraph).

The Maine PCMH Pilot was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between the Maine PCMH Pilot and the two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 9-22** reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 9-23** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 9-24** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See *Section 9.3.2* for further discussion of the interpretation of these measures.

Table 9-22
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 3,526)	4.42	[-2.29, 11.13]	3.44*	[0.46, 6.42]
Year Two (N = 2,392)	6.03	[-0.19, 12.25]	2.36	[-3.13, 7.84]
Year Three (N = 788)	-3.34*	[-6.16, -0.52]	1.54	[-4.57, 7.66]
Overall (N = 3,665)	4.08	[-0.46, 8.63]	2.83	[-0.78, 6.44]
Retinal eye examination				
Year One (N = 3,526)	6.43*	[2.68, 10.18]	2.41	[-0.63, 5.45]
Year Two (N = 2,392)	-0.68	[-5.00, 3.64]	-0.22	[-4.47, 4.04]
Year Three (N = 788)	-13.06*	[-20.42, -5.69]	4.28	[-1.76, 10.31]
Overall (N = 3,665)	1.60	[-1.17, 4.38]	1.69	[-0.99, 4.37]
LDL-C screening				
Year One (N = 3,526)	9.81*	[2.23, 17.39]	1.63	[-1.29, 4.56]
Year Two (N = 2,392)	13.59	[-1.56, 28.75]	2.45	[-2.23, 7.12]
Year Three (N = 788)	-5.80*	[-11.41, -0.19]	-1.97	[-8.69, 4.74]
Overall (N = 3,665)	9.33*	[0.74, 17.91]	1.50	[-1.54, 4.54]
Medical attention for nephropathy				
Year One (N = 3,526)	-3.01	[-9.70, 3.68]	1.22	[-2.05, 4.49]
Year Two (N = 2,392)	1.37	[-5.47, 8.21]	-2.31	[-6.95, 2.33]
Year Three (N = 788)	-10.84*	[-16.46, -5.22]	-1.21	[-6.67, 4.26]
Overall (N = 3,665)	-2.37	[-7.71, 2.97]	-0.33	[-3.66, 3.01]
Received all 4 diabetes tests				
Year One (N = 3,526)	5.18	[-1.69, 12.05]	1.91	[-1.80, 5.63]
Year Two (N = 2,392)	6.08	[-1.94, 14.10]	-1.80	[-7.31, 3.71]
Year Three (N = 788)	-24.84*	[-35.16, -14.53]	5.72	[-0.92, 12.35]
Overall (N = 3,665)	1.97	[-3.90, 7.84]	1.03	[-2.67, 4.74]
Received none of the 4 diabetes tests				
Year One (N = 3,526)	-0.88	[-2.53, 0.77]	-1.76*	[-3.48, -0.05]
Year Two (N = 2,392)	-4.25	[-10.83, 2.34]	-0.30	[-2.41, 1.81]
Year Three (N = 788)	1.71	[-0.09, 3.52]	0.50	[-1.77, 2.76]
Overall (N = 3,665)	-1.78	[-4.92, 1.36]	-0.98	[-2.69, 0.74]

(continued)

Table 9-22 (continued)
**Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration**

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total lipid panel				
Year One (N = 6,542)	4.53	[-0.43, 9.50]	-0.55	[-3.13, 2.04]
Year Two (N = 4,454)	4.92	[-7.01, 16.85]	-2.62	[-5.95, 0.71]
Year Three (N = 1,507)	-1.89	[-12.91, 9.13]	-5.13*	[-9.82, -0.43]
Overall (N = 7,166)	3.90	[-2.46, 10.25]	-1.84	[-4.23, 0.55]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that the Maine PCMH Pilot impacted process of care measures, although the statistical significance was not consistent across CGs. Specifically, **Table 9-22** shows that:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **LDL-C screening** increased among Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examination, medical attention for nephropathy, receipt of all four diabetes tests, receipt of none of the diabetes tests, and total lipid panels.

Table 9-23
Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	N	Adults	
		Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
HbA1c testing			
Year One	971	-15.00*	[-24.52, -5.48]
Year Two	666	7.07	[-8.70, 22.83]
Year Three	232	-3.04	[-19.53, 13.45]
Overall	1,132	-5.65	[-13.45, 2.14]
Retinal eye examination			
Year One	971	-2.19	[-13.10, 8.73]
Year Two	666	6.49	[-4.37, 17.34]
Year Three	232	4.98	[-17.66, 27.63]
Overall	1,132	1.79	[-7.25, 10.84]
LDL-C screening			
Year One	971	-5.29	[-20.32, 9.73]
Year Two	666	9.10	[-6.77, 24.96]
Year Three	232	-6.12	[-26.09, 13.85]
Overall	1,132	-0.27	[-9.64, 9.10]
Medical attention for nephropathy			
Year One	971	-11.08*	[-21.01, -1.15]
Year Two	666	-8.19*	[-14.91, -1.47]
Year Three	232	-13.44	[-28.58, 1.70]
Overall	1,132	-10.34*	[-18.48, -2.21]
Received all 4 diabetes tests			
Year One	971	-5.84	[-16.55, 4.86]
Year Two	666	10.49	[-4.17, 25.16]
Year Three	232	2.43	[-20.23, 25.09]
Overall	1,132	1.01	[-6.97, 8.98]
Received none of the 4 diabetes tests			
Year One	971	2.35	[-0.69, 5.39]
Year Two	666	1.76	[-0.58, 4.09]
Year Three	232	2.84	[-4.65, 10.34]
Overall	1,132	2.20	[-0.75, 5.15]
Breast cancer screening			
Year One	2,023	0.51	[-5.34, 6.36]
Year Two	1,342	7.18*	[0.52, 13.84]
Year Three	467	-17.79*	[-27.73, -7.85]
Overall	2,189	0.62	[-4.64, 5.87]
Cervical cancer screening			
Year One	4,539	-0.81	[-3.82, 2.21]
Year Two	2,851	-5.27	[-13.46, 2.92]
Year Three	967	2.89	[-0.85, 6.64]
Overall	4,829	-1.90	[-4.54, 0.74]

(continued)

Table 9-23 (continued)
**Maine: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration**

Outcome	N	Adults	
		Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Appropriate use of antidepressant medications (acute)			
Year One	1,736	-1.45	[-6.04, 3.13]
Year Two	1,160	-1.24	[-7.82, 5.35]
Year Three	438	-0.29	[-7.85, 7.27]
Overall	2,431	-1.23	[-5.62, 3.17]
Appropriate use of antidepressant medications (continuous)			
Year One	1,736	-3.40	[-8.00, 1.20]
Year Two	1,160	-2.93	[-9.36, 3.50]
Year Three	438	-2.60	[-10.11, 4.92]
Overall	2,431	-3.13	[-7.76, 1.50]
Appropriate use of asthma medications			
Year One	603	-2.94	[-13.76, 7.89]
Year Two	369	5.84	[-15.25, 26.93]
Year Three	130	15.19	[-6.70, 37.08]
Overall	784	2.14	[-7.03, 11.32]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.
- Children with multiple chronic conditions were not examined given the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found no evidence that the Maine PCMH Pilot impacted process of care measures, with the exception of medical attention for nephropathy. Specifically, **Table 9-23** shows that:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **medical attention for nephropathy** decreased among Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, retinal eye examinations, receipt of all four diabetes tests, receipt of none of the diabetes tests, breast cancer screening, cervical cancer screening, and the appropriate use of antidepressant and asthma medications.

Table 9-24
Maine: Comparison of average MAPCP Demonstration effect estimates for
health outcomes among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 5,746)	2.30	[-2.65, 7.25]	-0.32	[-2.45, 1.81]
Year Two (N = 12,591)	4.63	[-4.49, 13.75]	2.67*	[0.40, 4.94]
Year Three (N = 11,265)	2.69	[-1.90, 7.27]	4.91*	[2.51, 7.32]
Overall (N = 14,402)	3.43	[-2.55, 9.41]	2.96*	[1.39, 4.54]
PQI admissions—overall ²				
Year One (N = 5,746)	8.80*	[0.50, 17.10]	3.00	[-2.00, 8.01]
Year Two (N = 12,591)	4.06	[-6.73, 14.86]	6.34*	[1.60, 11.07]
Year Three (N = 11,265)	6.63	[-4.34, 17.60]	7.90*	[0.77, 15.04]
Overall (N = 14,402)	5.97	[-3.69, 15.62]	6.30*	[1.42, 11.19]
PQI admissions—acute ³				
Year One (N = 5,746)	2.50	[-0.85, 5.85]	0.38	[-1.72, 2.48]
Year Two (N = 12,591)	-1.75	[-7.95, 4.45]	2.13	[-0.56, 4.82]
Year Three (N = 11,265)	-3.84	[-11.94, 4.26]	3.01	[-0.60, 6.61]
Overall (N = 14,402)	-1.75	[-6.94, 3.45]	2.13	[-0.05, 4.32]

(continued)

Table 9-24 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 5,746)	6.25*	[0.75, 11.74]	2.94	[-1.12, 7.01]
Year Two (N = 12,591)	5.58	[-0.36, 11.52]	4.36*	[1.32, 7.39]
Year Three (N = 11,265)	9.29*	[3.01, 15.57]	4.94	[-0.12, 10.01]
Overall (N = 14,402)	7.14*	[1.85, 12.44]	4.31*	[0.82, 7.80]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with multiple chronic conditions, we found some evidence that the Maine PCMH Pilot increased the likelihood of chronic PQI admissions. Specifically, **Table 9-24** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* likelihood of **avoidable catastrophic events** and **overall PQI admissions** increased among Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* likelihood of **chronic PQI admissions** increased among Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH comparison practices.

No statistically significant *overall* changes were observed in the measure of acute PQI admissions.

The Maine PCMH Pilot is expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between the Maine PCMH Pilot and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 9-25** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COC Index.
- **Table 9-26** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 9.4.2** for further discussion of the interpretation of these measures.

Table 9-25

Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 5,746)	-81.41	[-183.28, 20.46]	28.83	[-74.20, 131.86]
Year Two (N = 12,591)	-17.63	[-139.50, 104.24]	120.12	[-3.53, 243.78]
Year Three (N = 11,265)	48.19	[-87.08, 183.46]	123.76	[-6.52, 254.04]
Overall (N = 14,402)	-4.39	[-107.27, 98.48]	104.03	[-11.88, 219.93]

(continued)

Table 9-25 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 5,746)	-13.74	[-116.33, 88.85]	16.46	[-34.62, 67.53]
Year Two (N = 12,591)	-83.62	[-215.82, 48.58]	17.95	[-36.89, 72.80]
Year Three (N = 11,265)	-28.44	[-152.66, 95.78]	35.15	[-34.17, 104.47]
Overall (N = 14,402)	-48.88	[-167.62, 69.87]	24.32	[-30.40, 79.04]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 5,746)	-9.47	[-34.54, 15.60]	4.36	[-17.11, 25.82]
Year Two (N = 12,591)	-7.28	[-25.00, 10.43]	17.92	[-5.06, 40.90]
Year Three (N = 11,265)	-22.99	[-55.37, 9.38]	13.76	[-8.72, 36.23]
Overall (N = 14,402)	-13.78	[-36.02, 8.46]	13.71	[-6.09, 33.51]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 10,336)				
1st quintile	-0.57	[-2.42, 1.28]	-1.12	[-3.79, 1.56]
5th quintile	0.42	[-0.90, 1.75]	0.89	[-1.13, 2.91]
Year Two (N = 7,615)				
1st quintile	-0.36	[-5.20, 4.47]	-0.88	[-3.50, 1.74]
5th quintile	0.30	[-3.68, 4.29]	0.78	[-1.46, 3.03]
Year Three (N = 2,439)				
1st quintile	-2.17	[-5.52, 1.19]	-1.70	[-5.49, 2.09]
5th quintile	1.87	[-0.89, 4.62]	1.60	[-1.74, 4.93]
Overall (N = 11,204)				
1st quintile	-0.68	[-3.03, 1.66]	-1.10	[-3.73, 1.54]
5th quintile	0.55	[-1.31, 2.42]	0.93	[-1.19, 3.06]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,370)	-47.73	[-179.81, 84.35]	25.25	[-50.93, 101.43]
Year Two (N = 3,001)	-146.87*	[-279.56, -14.18]	39.69	[-38.99, 118.37]
Year Three (N = 2,133)	-33.58	[-134.08, 66.92]	21.71	[-101.05, 144.47]
Overall (N = 5,047)	-90.11	[-193.28, 13.07]	30.96	[-43.08, 105.00]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 1,742)	-51.38	[-117.77, 15.00]	-11.12	[-45.18, 22.95]
Year Two (N = 3,743)	-3.14	[-98.67, 92.39]	25.16	[-15.11, 65.43]
Year Three (N = 2,754)	-53.61	[-160.05, 52.84]	20.38	[-22.88, 63.65]
Overall (N = 6,222)	-29.49	[-111.19, 52.21]	15.84	[-14.57, 46.25]

(continued)

Table 9-25 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care)				
Year One (N = 13,883)				
1st quintile	-3.67*	[-7.16, -0.18]	-0.53	[-2.64, 1.57]
5th quintile	3.20*	[0.61, 5.80]	0.54	[-1.59, 2.67]
Year Two (N = 10,386)				
1st quintile	-2.21	[-5.45, 1.03]	-1.90	[-4.56, 0.76]
5th quintile	1.82	[-0.64, 4.29]	1.63	[-0.62, 3.88]
Year Three (N = 3,531)				
1st quintile	5.54	[-2.75, 13.82]	0.20	[-3.31, 3.71]
5th quintile	-5.27	[-14.74, 4.20]	-0.16	[-2.89, 2.58]
Overall (N = 14,088)				
1st quintile	-1.95	[-4.52, 0.61]	-0.95	[-3.11, 1.21]
5th quintile	1.61	[-0.32, 3.54]	0.86	[-1.11, 2.83]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index) Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, no statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits; follow-up visit within 14 days after discharge; primary care visits as a percent of total visits; continuity of care; and 30-day unplanned readmissions, as shown in *Table 9-25*.

Table 9-26
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Primary care visits			
Year One	4,878	1.92	[-6.28, 10.11]
Year Two	8,344	5.11	[-3.04, 13.26]
Year Three	7,208	6.46	[-2.27, 15.19]
Overall	11,016	4.87	[-3.30, 13.04]
Medical specialist visits			
Year One	4,878	-0.14	[-2.54, 2.25]
Year Two	8,344	1.03	[-1.56, 3.61]
Year Three	7,208	0.79	[-1.77, 3.35]
Overall	11,016	0.68	[-1.69, 3.05]
Surgical specialist visits			
Year One	4,878	1.15	[-0.02, 2.33]
Year Two	8,344	1.29	[-0.23, 2.81]
Year Three	7,208	1.20*	[0.10, 2.31]
Overall	11,016	1.23*	[0.05, 2.41]
Primary care visits as percentage of total visits (% PC)			
Year One			
% PC < 70%	4,542	-5.80	[-16.62, 5.01]
70% ≤ % PC < 100%		1.66	[-1.89, 5.21]
% PC = 100%		4.14	[-3.18, 11.47]
Year Two			
% PC < 70%	2,623	4.43	[-9.08, 17.95]
70% ≤ % PC < 100%		-1.06	[-3.98, 1.85]
% PC = 100%		-3.37	[-14.03, 7.29]
Year Three			
% PC < 70%	709	2.00	[-5.67, 9.68]
70% ≤ % PC < 100%		-0.63	[-3.00, 1.74]
% PC = 100%		-1.37	[-6.69, 3.94]
Overall			
% PC < 70%	5,200	-1.69	[-12.31, 8.93]
70% ≤ % PC < 100%		0.55	[-2.38, 3.48]
% PC = 100%		1.14	[-6.56, 8.84]

(continued)

Table 9-26 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
30-day unplanned readmissions			
Year One	584	-3.72	[-8.86, 1.42]
Year Two	958	-11.81*	[-19.79, -3.83]
Year Three	681	-0.10	[-8.42, 8.22]
Overall	1,935	-6.13*	[-12.09, -0.17]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events occurring among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total visits are interpreted as the percentage point difference associated with the Maine PCMH Pilot in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid adults with multiple chronic conditions, we found no evidence that the Maine PCMH Pilot impacted the access to care and care coordination measures, with the exception of surgical specialist visits and 30-day unplanned readmissions. Specifically, **Table 9-26** shows that:

- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **surgical specialist visits** increased among Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **30-day unplanned readmissions** decreased among Maine

PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for the measures of primary care visits, medical specialist visits, and primary care visits as a percent of total visits.

The Maine PCMH Pilot was expected to decrease the use of some services and increase the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between the Maine PCMH Pilot and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 9-27** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 9-28** reports on changes in total *Medicaid expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 9-29** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 9-30** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 9.6.2** for further discussion of the interpretation of these measures.

Table 9-27
Maine: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 5,746)	170.80*	[74.79, 266.81]	-95.16	[-229.65, 39.34]
Year Two (N = 12,591)	161.26	[-59.78, 382.30]	125.03*	[6.87, 243.19]
Year Three (N = 11,265)	116.71*	[14.05, 219.36]	247.91*	[150.52, 345.29]
Overall (N = 14,402)	145.85*	[15.97, 275.73]	130.35*	[35.47, 225.23]
Overall Aggregate	\$45,161,987*		\$40,362,508*	

(continued)

Table 9-27 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Acute care				
Year One (N = 5,746)	70.47*	[27.40, 113.53]	-60.22	[-144.76, 24.32]
Year Two (N = 12,591)	90.40	[-11.72, 192.53]	63.44	[-7.61, 134.49]
Year Three (N = 11,265)	31.45	[-20.41, 83.31]	120.64*	[72.30, 168.99]
Overall (N = 14,402)	63.77*	[2.57, 124.98]	61.86*	[7.83, 115.89]
Overall Aggregate	\$19,747,354*		\$19,154,870*	
Post-acute-care				
Year One (N = 5,746)	52.67*	[9.30, 96.04]	1.92	[-33.97, 37.82]
Year Two (N = 12,591)	48.95	[-8.69, 106.59]	17.20	[-8.62, 43.02]
Year Three (N = 11,265)	37.95	[-19.38, 95.28]	19.12	[-9.12, 47.36]
Overall (N = 14,402)	45.41*	[7.94, 82.88]	15.01	[-6.32, 36.35]
Overall Aggregate	\$14,060,874*		\$4,649,132	
ER visits not leading to hospitalization				
Year One (N = 5,746)	0.39	[-13.27, 14.05]	-9.90	[-23.71, 3.91]
Year Two (N = 12,591)	3.32	[-5.85, 12.48]	-3.26	[-12.68, 6.15]
Year Three (N = 11,265)	15.49*	[3.93, 27.06]	6.35	[-3.09, 15.79]
Overall (N = 14,402)	7.47	[-2.25, 17.19]	-0.82	[-9.60, 7.96]
Overall Aggregate	\$2,311,684		-\$252,967	
Outpatient				
Year One (N = 5,746)	24.52*	[3.68, 45.37]	-4.12	[-29.80, 21.56]
Year Two (N = 12,591)	30.88*	[11.99, 49.78]	30.26*	[6.87, 53.64]
Year Three (N = 11,265)	31.08	[-40.77, 102.92]	46.57*	[18.72, 74.42]
Overall (N = 14,402)	29.74	[-0.79, 60.27]	29.97*	[9.10, 50.85]
Overall Aggregate	\$9,208,542		\$9,281,506*	
Specialty physician				
Year One (N = 5,746)	-14.84	[-49.38, 19.71]	-2.98	[-19.66, 13.71]
Year Two (N = 12,591)	-5.68	[-24.30, 12.94]	7.79	[-1.59, 17.17]
Year Three (N = 11,265)	-13.11	[-29.86, 3.64]	17.41*	[7.85, 26.97]
Overall (N = 14,402)	-10.31	[-29.31, 8.69]	9.45*	[1.05, 17.85]
Overall Aggregate	-\$3,192,540		\$2,924,909*	
Primary care physician				
Year One (N = 5,746)	3.10	[-1.80, 8.00]	-3.68	[-8.51, 1.15]
Year Two (N = 12,591)	-1.19	[-13.86, 11.48]	3.29	[-1.20, 7.79]
Year Three (N = 11,265)	-3.34	[-15.86, 9.18]	5.09	[-0.48, 10.67]
Overall (N = 14,402)	-1.20	[-11.76, 9.37]	2.65	[-1.88, 7.18]
Overall Aggregate	-\$370,642		\$821,340	
Home health				
Year One (N = 5,746)	-1.13	[-18.17, 15.91]	3.57	[-5.51, 12.65]
Year Two (N = 12,591)	-14.12	[-42.84, 14.60]	10.55*	[1.14, 19.95]
Year Three (N = 11,265)	-8.18	[-29.07, 12.70]	23.19*	[10.68, 35.70]
Overall (N = 14,402)	-9.33	[-30.58, 11.91]	14.10*	[5.07, 23.13]
Overall Aggregate	-\$2,890,335		\$4,366,244*	

(continued)

Table 9-27 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other non-facility				
Year One (N = 5,746)	10.84*	[3.50, 18.17]	-4.62	[-10.65, 1.42]
Year Two (N = 12,591)	2.75	[-5.63, 11.12]	-3.84	[-11.67, 3.98]
Year Three (N = 11,265)	6.78*	[1.31, 12.24]	-1.61	[-7.87, 4.64]
Overall (N = 14,402)	5.86*	[0.15, 11.56]	-3.13	[-9.10, 2.84]
Overall Aggregate	\$1,813,218*		-\$968,957	
Laboratory				
Year One (N = 5,746)	0.09	[-2.97, 3.15]	1.32	[-0.89, 3.54]
Year Two (N = 12,591)	-1.05	[-4.00, 1.90]	0.72	[-2.75, 4.20]
Year Three (N = 11,265)	-0.60	[-4.43, 3.23]	0.47	[-2.88, 3.83]
Overall (N = 14,402)	-0.66	[-3.82, 2.50]	0.74	[-2.11, 3.59]
Overall Aggregate	-\$204,101		\$229,485	
Imaging				
Year One (N = 5,746)	-0.08	[-1.78, 1.62]	0.21	[-1.21, 1.63]
Year Two (N = 12,591)	-0.07	[-3.40, 3.26]	0.87	[-0.27, 2.01]
Year Three (N = 11,265)	-1.79	[-4.59, 1.01]	0.46	[-0.61, 1.53]
Overall (N = 14,402)	-0.74	[-3.43, 1.96]	0.59	[-0.36, 1.53]
Overall Aggregate	-\$227,670		\$181,204	
Other facility				
Year One (N = 5,746)	-0.27	[-0.74, 0.20]	0.68	[-1.00, 2.35]
Year Two (N = 12,591)	-0.07	[-0.37, 0.22]	0.93	[-0.72, 2.57]
Year Three (N = 11,265)	-0.16	[-0.54, 0.22]	0.10	[-2.11, 2.31]
Overall (N = 14,402)	-0.15	[-0.50, 0.21]	0.56	[-1.20, 2.32]
Overall Aggregate	-\$44,974		\$173,074	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique Maine PCMH Pilot beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found greater growth in several expenditure categories, including total Medicare expenditures, for Maine PCMH Pilot beneficiaries, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 9-27** shows that:

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **total Medicare expenditures** was \$45.2 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH practices and \$40.4 million greater compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **acute-care expenditures** was \$19.7 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH practices and \$19.2 million greater compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **post-acute-care expenditures** was \$14.1 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **other non-facility expenditures** was \$1.8 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **outpatient expenditures** was \$9.3 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **specialty physician expenditures** was \$2.9 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **home health expenditures** was \$4.4 million greater for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for ER visits not leading to hospitalization and primary care physician, laboratory, imaging, and other facility expenditures.

Table 9-28
Maine: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Total Medicaid			
Year One	4,878	30.69	[-64.58, 125.96]
Year Two	8,344	-8.16	[-106.79, 90.46]
Year Three	7,208	1.47	[-102.98, 105.92]
Overall	11,016	4.01	[-87.00, 95.01]
Overall Aggregate		\$793,426	
Acute care			
Year One	4,878	8.32	[-24.87, 41.51]
Year Two	8,344	-17.00	[-53.12, 19.13]
Year Three	7,208	-4.61	[-50.59, 41.37]
Overall	11,016	-6.89	[-39.93, 26.14]
Overall Aggregate		-\$1,365,125	
ER visits not leading to hospitalization			
Year One	4,878	0.90	[-10.53, 12.34]
Year Two	8,344	2.00	[-6.91, 10.90]
Year Three	7,208	2.74	[-6.47, 11.96]
Overall	11,016	2.02	[-6.20, 10.24]
Overall Aggregate		\$399,432	
Specialty physician			
Year One	4,878	2.43	[-2.63, 7.50]
Year Two	8,344	1.55	[-2.96, 6.07]
Year Three	7,208	0.78	[-2.94, 4.50]
Overall	11,016	1.48	[-2.34, 5.29]
Overall Aggregate		\$292,410	
Primary care physician			
Year One	4,878	2.61	[-15.16, 20.37]
Year Two	8,344	5.91	[-11.98, 23.80]
Year Three	7,208	7.18	[-12.23, 26.60]
Overall	11,016	5.62	[-12.64, 23.88]
Overall Aggregate		\$1,112,855	
Prescription drugs			
Year One	4,878	14.99	[-2.38, 32.37]
Year Two	8,344	8.14	[-12.22, 28.49]
Year Three	7,208	3.35	[-18.44, 25.14]
Overall	11,016	7.98	[-10.01, 25.97]
Overall Aggregate		\$1,580,184	

(continued)

Table 9-28 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Type of expenditure	Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
Long-term care			
Year One	4,878	-9.31*	[-14.50, -4.12]
Year Two	8,344	-7.51*	[-13.49, -1.54]
Year Three	7,208	-7.73*	[-15.26, -0.20]
Overall	11,016	-8.00*	[-13.51, -2.48]
Overall Aggregate		-\$1,583,606*	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found no evidence that the Maine PCMH Pilot impacted expenditures, except for long-term care expenditures. Specifically, **Table 9-28** shows that:

- Among Medicaid beneficiaries with multiple chronic conditions, the growth in *overall aggregate long-term care expenditures* was \$1.6 million lower for Maine PCMH Pilot beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for total, acute-care, ER visits not leading to hospitalization, primary care physician, specialty care physician, and prescription drug expenditures.

Table 9-29
Maine: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 5,746)	15.56*	[3.49, 27.64]	-1.35	[-13.63, 10.92]
Year Two (N = 12,591)	9.96	[-24.21, 44.14]	19.85*	[8.09, 31.62]
Year Three (N = 11,265)	8.39	[-14.91, 31.70]	25.00*	[12.67, 37.33]
Overall (N = 14,402)	10.43	[-12.78, 33.64]	17.78*	[8.01, 27.54]
Overall Aggregate	1,077		1,835*	
ER visits not leading to hospitalization				
Year One (N = 5,746)	6.42	[-36.44, 49.28]	-12.20	[-42.00, 17.60]
Year Two (N = 12,591)	-1.64	[-25.24, 21.97]	-14.67	[-38.33, 8.99]
Year Three (N = 11,265)	39.06*	[9.17, 68.94]	14.82	[-11.27, 40.91]
Overall (N = 14,402)	15.65	[-9.21, 40.52]	-2.79	[-23.17, 17.60]
Overall Aggregate	1,615		-288	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence that the Maine PCMH Pilot changed the rate of all-cause admissions. Specifically, **Table 9-29** shows that:

- The *overall aggregate* number of **all-cause admissions** increased by 1,835 among Medicare beneficiaries assigned the Maine PCMH Pilot compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for ER visits not leading to hospitalization.

Table 9-30
Maine: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval
All-cause admissions			
Year One	4,878	0.26	[-0.67, 1.20]
Year Two	8,344	-0.46	[-1.47, 0.55]
Year Three	7,208	-0.59	[-1.60, 0.43]
Overall	11,016	-0.34	[-1.17, 0.49]
Overall Aggregate		-226	
ER visits not leading to hospitalization			
Year One	4,878	2.27*	[0.18, 4.35]
Year Two	8,344	0.85	[-1.26, 2.97]
Year Three	7,208	2.66*	[0.82, 4.51]
Overall	11,016	1.81*	[0.08, 3.55]
Overall Aggregate		1,198*	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Maine PCMH Pilot participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among Maine PCMH Pilot Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found no evidence that the Maine PCMH Pilot changed utilization, with the exception of ER visits not leading to hospitalization. Specifically, **Table 9-30** shows that:

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 1,198 among Medicaid adult beneficiaries assigned to the Maine PCMH Pilot compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among adult Medicaid beneficiaries with multiple chronic conditions for all-cause admissions.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. The Maine PCMH Pilot targeted beneficiaries with behavioral health issues through one of the 10 Core Expectations—integration of primary care and behavioral health care. Maine PCMH Pilot practices were expected to integrate mental and behavioral health services with primary care to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse disorders. Further, the CCTs were expected to help link their high-cost, high-utilization patients with behavioral health services if needed. In addition, the introduction of BHHOs for Medicaid beneficiaries with significant behavioral issues also was expected to improve access to and utilization of behavioral health services for this population. Improved integration of physical and behavioral health services was expected to improve access to and coordination of behavioral health services, which could increase use of outpatient behavioral health services and primary care visits. More appropriate use of outpatient care could lead to decreases in rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the pilot and changes for Medicare and Medicaid beneficiaries with behavioral health conditions.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim and/or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the pilot. Using this criterion, 20 percent of the Medicare study sample (demonstration and CG beneficiaries), 14 percent of the adult Medicaid study sample, and 3 percent of the pediatric Medicaid study sample were identified as having a behavioral health condition.

- **Table 9-31** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 9-32** reports on changes in total Medicaid expenditures, expenditures for acute hospitalizations, expenditures for ER visits, and total Medicaid expenditures for which the primary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 9-33** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-

cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

- **Table 9-34** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 9.6.2** for further discussion of the interpretation of these measures.

Table 9-31
Maine: Comparison of average MAPCP Demonstration effect estimates for
PBPM Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 5,648)	100.75	[-10.50, 212.00]	-38.40	[-145.30, 68.51]
Year Two (N = 11,884)	21.81	[-80.21, 123.82]	29.04	[-44.27, 102.35]
Year Three (N = 11,243)	-10.04	[-92.46, 72.38]	129.30*	[53.55, 205.04]
Overall (N = 14,053)	24.33	[-53.49, 102.14]	55.98	[-10.53, 122.49]
Overall Aggregate	\$7,232,300		\$16,643,891	
Acute care				
Year One (N = 5,648)	47.45	[-37.92, 132.82]	-35.44	[-99.64, 28.75]
Year Two (N = 11,884)	32.79	[-34.28, 99.87]	20.49	[-25.19, 66.16]
Year Three (N = 11,243)	-9.09	[-54.29, 36.11]	80.71*	[46.82, 114.60]
Overall (N = 14,053)	18.93	[-28.86, 66.73]	33.70	[-3.51, 70.91]
Overall Aggregate	\$5,629,016		\$10,019,894	
ER visits not leading to hospitalization				
Year One (N = 5,648)	-0.85	[-19.79, 18.09]	-4.14	[-13.21, 4.92]
Year Two (N = 11,884)	-5.54	[-24.18, 13.10]	-4.00	[-10.39, 2.40]
Year Three (N = 11,243)	4.35	[-9.19, 17.89]	7.83*	[1.16, 14.51]
Overall (N = 14,053)	-0.70	[-16.61, 15.21]	0.69	[-5.16, 6.53]
Overall Aggregate	-\$207,708		\$204,396	

(continued)

Table 9-31 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
PBPM Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 5,648)	8.87	[-7.24, 24.98]	10.16*	[1.93, 18.39]
Year Two (N = 11,884)	7.65	[-4.93, 20.22]	2.50	[-8.45, 13.44]
Year Three (N = 11,243)	-3.82	[-17.23, 9.58]	7.72	[-3.10, 18.54]
Overall (N = 14,053)	3.31	[-8.04, 14.67]	6.06	[-1.22, 13.33]
Overall Aggregate	\$985,314		\$1,800,505	
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 5,648)	63.39	[-6.53, 133.31]	-18.17	[-61.10, 24.77]
Year Two (N = 11,884)	30.21	[-36.55, 96.97]	11.10	[-17.48, 39.69]
Year Three (N = 11,243)	10.98	[-39.01, 60.97]	62.45*	[24.92, 99.99]
Overall (N = 14,053)	28.94	[-23.34, 81.21]	25.92	[-0.63, 52.47]
Overall Aggregate	\$8,603,804		\$7,705,467	

NOTES:

- All measures are PBPM expenditures, except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique Maine PCMH Pilot beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, there are no statistically significant impacts of Maine PCMH Pilot on total Medicare expenditures, acute-care expenditures, expenditures for ER visits not leading to a hospitalization, expenditures for total services with a principal diagnosis of a behavioral health condition, or expenditures for total services with a secondary diagnosis of a behavioral health condition, as shown in **Table 9-31**.

Table 9-32
Maine: Comparison of average MAPCP Demonstration effect estimates for
PBPM Medicaid expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Total Medicaid						
Year One	555	-75.67	[-308.85, 157.50]	2,246	136.12*	[17.44, 254.80]
Year Two	991	-185.71	[-441.25, 69.83]	4,035	47.97	[-88.68, 184.62]
Year Three	1,076	-34.75	[-298.59, 229.09]	3,598	-29.97	[-156.59, 96.65]
Overall Overall Aggregate	1,340	-100.27 -\$2,545,038	[-327.04, 126.50]	5,485	37.96 \$3,557,239	[-76.85, 152.77]
Acute care						
Year One	555	14.71	[-42.15, 71.58]	2,246	48.31*	[10.11, 86.51]
Year Two	991	-2.00	[-46.18, 42.17]	4,035	10.24	[-27.50, 47.97]
Year Three	1,076	-19.76	[-60.23, 20.72]	3,598	-14.50	[-85.53, 56.53]
Overall Overall Aggregate	1,340	-6.10 -\$154,724	[-36.13, 23.94]	5,485	9.21 \$863,446	[-29.64, 48.07]
ER visits not leading to hospitalization						
Year One	555	1.05	[-9.36, 11.47]	2,246	5.20	[-17.17, 27.58]
Year Two	991	0.92	[-11.83, 13.66]	4,035	-2.84	[-26.41, 20.74]
Year Three	1,076	-2.77	[-15.58, 10.05]	3,598	-0.99	[-20.60, 18.63]
Overall Overall Aggregate	1,340	-0.60 -\$15,288	[-11.75, 10.54]	5,485	-0.44 -\$40,805	[-19.96, 19.09]

(continued)

Table 9-32 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
PBPM Medicaid expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition						
Year One	555	53.44	[-78.82, 185.71]	2,246	20.66	[-31.07, 72.38]
Year Two	991	28.29	[-90.18, 146.76]	4,035	-38.71	[-108.81, 31.39]
Year Three	1,076	-22.33	[-121.46, 76.81]	3,598	-39.63	[-90.23, 10.97]
Overall	1,340	12.10	[-94.16, 118.35]	5,485	-26.37	[-77.34, 24.59]
Overall Aggregate		\$307,097			-\$2,471,411	

NOTES:

- All measures are PBPM expenditures. Expenditures that exceeded the 99th percentile of the distribution were recoded at the 99th percentile.
- N represents sample sizes of unique Maine PCMH Pilot participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among both Medicaid children and Medicaid adults with behavioral health conditions, there are no statistically significant impacts of the Maine PCMH Pilot on total Medicaid expenditures, acute-care expenditures, expenditures for ER visits not leading to a hospitalization, or expenditures for total services with a secondary diagnosis of a behavioral health condition, as shown in **Table 9-32**.

Table 9-33
Maine: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 5,648)	8.24	[-6.79, 23.28]	0.34	[-6.64, 7.33]
Year Two (N = 11,884)	1.63	[-9.62, 12.88]	3.00	[-4.36, 10.36]
Year Three (N = 11,243)	-3.31	[-14.55, 7.93]	16.76*	[6.92, 26.60]
Overall (N = 14,053)	0.94	[-8.66, 10.53]	7.97*	[2.22, 13.72]
Overall Aggregate	93		790*	
ER visits not leading to hospitalization				
Year One (N = 5,648)	-35.58	[-95.08, 23.92]	-22.83	[-58.22, 12.56]
Year Two (N = 11,884)	-60.25	[-129.33, 8.82]	-24.83	[-54.11, 4.45]
Year Three (N = 11,243)	-28.93	[-91.26, 33.40]	8.24	[-22.89, 39.37]
Overall (N = 14,053)	-43.03	[-103.76, 17.71]	-11.27	[-37.51, 14.96]
Overall Aggregate	-4,264		-1,117	
Behavioral health inpatient admissions				
Year One (N = 5,648)	-1.08	[-5.51, 3.35]	0.34	[-1.08, 1.75]
Year Two (N = 11,884)	1.59	[-2.13, 5.31]	0.91	[-1.23, 3.06]
Year Three (N = 11,243)	-1.86	[-4.50, 0.78]	1.50	[-1.17, 4.17]
Overall (N = 14,053)	-0.30	[-3.02, 2.43]	1.04	[-0.65, 2.72]
Overall Aggregate	-29		103	
Behavioral health ER visits				
Year One (N = 5,648)	-2.55	[-12.00, 6.90]	3.96	[-1.47, 9.38]
Year Two (N = 11,884)	-10.21*	[-20.31, -0.11]	0.58	[-5.30, 6.47]
Year Three (N = 11,243)	-2.28	[-12.34, 7.78]	2.65	[-3.86, 9.16]
Overall (N = 14,053)	-5.58	[-13.44, 2.29]	2.05	[-2.85, 6.96]
Overall Aggregate	-553		204	

(continued)

Table 9-33 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Maine PCMH Pilot vs. CG PCMHs		Maine PCMH Pilot vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits				
Year One (N = 5,648)	101.78	[-31.36, 234.93]	106.68	[-43.54, 256.90]
Year Two (N = 11,884)	45.05	[-93.40, 183.50]	1.45	[-108.52, 111.42]
Year Three (N = 11,243)	27.53	[-123.95, 179.01]	-8.88	[-113.66, 95.90]
Overall (N = 14,053)	49.00	[-83.42, 181.42]	17.60	[-85.57, 120.77]
Overall Aggregate	4,856		1,744	

NOTES:

- All measures are rates per 1,000 beneficiary quarters, except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique Maine PCMH Pilot beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique Maine PCMH Pilot participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among Maine PCMH Pilot beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found no evidence that the Maine PCMH Pilot decreased the rate of health care utilization. Specifically, **Table 9-33** shows that:

- Among Medicare beneficiaries with behavioral health conditions, **all-cause admissions** increased by an overall aggregate of 790 hospital visits when beneficiaries assigned to CCI were compared with beneficiaries assigned to non-PCMH practices.

Among Medicare beneficiaries with behavioral health conditions, no statistically significant effect of the Maine PCMH Pilot was observed for ER visits not leading to a hospitalization, behavioral health inpatient admissions, behavioral health ER visits, or behavioral

health outpatient visits. The Maine PCMH Pilot resulted in no significant reduction in overall health care utilization for the selected measures.

Table 9-34
Maine: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
All-cause inpatient admissions						
Year One	555	-0.01	[-1.50, 1.48]	2,246	1.02	[-0.26, 2.30]
Year Two	991	-0.43	[-1.49, 0.63]	4,035	0.13	[-1.19, 1.45]
Year Three	1,076	-1.20	[-3.14, 0.73]	3,598	-0.74	[-2.16, 0.69]
Overall	1,340	-0.67	[-1.93, 0.59]	5,485	0.00	[-1.19, 1.19]
Overall Aggregate		-57			-1	
ER visits not leading to hospitalization						
Year One	555	3.10	[-1.18, 7.39]	2,246	1.60	[-2.59, 5.79]
Year Two	991	1.71	[-3.33, 6.75]	4,035	-1.55	[-5.99, 2.88]
Year Three	1,076	1.44	[-1.16, 4.04]	3,598	0.14	[-2.42, 2.69]
Overall	1,340	1.88	[-1.61, 5.36]	5,485	-0.25	[-3.37, 2.86]
Overall Aggregate		159			-79	
Behavioral health inpatient admissions						
Year One	555	0.82	[-0.56, 2.20]	2,246	0.48	[-0.48, 1.45]
Year Two	991	0.07	[-0.60, 0.73]	4,035	0.41	[-0.45, 1.27]
Year Three	1,076	-0.33	[-1.26, 0.60]	3,598	0.32	[-0.42, 1.07]
Overall	1,340	0.05	[-0.50, 0.60]	5,485	0.40	[-0.41, 1.20]
Overall Aggregate		4			123	
Behavioral health ER visits						
Year One	555	0.57	[-1.61, 2.75]	2,246	0.09	[-2.98, 3.15]
Year Two	991	1.52	[-0.51, 3.55]	4,035	-1.19	[-4.80, 2.43]
Year Three	1,076	0.37	[-2.19, 2.93]	3,598	-1.08	[-3.59, 1.43]
Overall	1,340	0.85	[-0.94, 2.64]	5,485	-0.88	[-3.55, 1.79]
Overall Aggregate		72			-274	

(continued)

Table 9-34 (continued)
Maine: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Children			Adults		
	N	Maine PCMH Pilot vs. CG non-PCMHs		N	Maine PCMH Pilot vs. CG non-PCMHs	
		Average estimate	90% confidence interval		Average estimate	90% confidence interval
Behavioral health outpatient visits						
Year One	555	7.89	[-3.52, 19.30]	2,246	7.97*	[0.84, 15.09]
Year Two	991	4.15	[-7.49, 15.78]	4,035	5.57	[-1.70, 12.83]
Year Three	1,076	0.03	[-12.46, 12.52]	3,598	0.64	[-5.61, 6.89]
Overall	1,340	3.17	[-8.21, 14.55]	5,485	4.26	[-2.15, 10.66]
Overall Aggregate		268			1,330	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique Maine PCMH Pilot participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among Maine PCMH Pilot Medicaid beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among both Medicaid children and Medicaid adults with behavioral health conditions, there are no statistically significant impacts of the Maine PCMH Pilot on the likelihood of having an all-cause admission, ER visit not leading to hospitalization, behavioral health admission, behavioral health ER visits not leading to hospitalization, or behavioral health outpatient visit, as shown in **Table 9-34**.

9.7.3 Discussion of Special Populations

The Maine PCMH Pilot did not target any subpopulation for special treatment, but rather aimed for comprehensive practice transformation. Although not explicitly identified as a target population, patients at high risk for extensive use of health care services and patients with behavioral health and substance abuse issues were a focus of Maine PCMH Pilot efforts.

Starting in Year Two and extending into Year Three, providers and CCTs collaborated on standardizing care management services and determining which patients to target. CCTs and practices worked together to identify patients to receive CCT services, using the guidelines set by the Maine PCMH Pilot conveners. Many of these complex patients served by the CCTs were also dually eligible for Medicare and Medicaid. Although we could not identify the subsample of patients served by the CCTs for claims data analysis, we were able to identify those with multiple chronic conditions. Medicare beneficiaries with multiple chronic conditions assigned to the Maine PCMH Pilot had greater total Medicare expenditure growth (more than \$40 million more compared with the CGs), which was driven in part by more acute-care expenditures and higher rates of inpatient admissions, including PQI admissions and avoidable catastrophic events, compared with beneficiaries assigned to CGs. There were no statistically significant changes in expenditures or utilization for Medicaid beneficiaries with multiple chronic conditions in the Maine PCMH Pilot relative to the CG. The Medicare findings in particular might suggest that the efforts of Maine PCMH Pilot practices and CCTs to reach this subpopulation and provide them with necessary services not previously received resulted in higher overall expenditures in the short term; however, there would still have been an expectation that after some amount of time, expenditures and utilization would begin to fall for this population if they were receiving accessible, coordinated care. Over the course of our evaluation period, there was no evidence that expenditures or inpatient utilization began to fall, but the evaluation time period may have been too short and more time was needed to begin to effect change in this particular population. Further, there were few significant findings related to changes in quality of care, access to care, and care coordination measures for Maine PCMH Pilot Medicare or Medicaid beneficiaries with multiple chronic conditions.

The Maine PCMH Pilot and its practices undertook numerous activities to address the needs of patients with behavioral health and substance abuse issues. Specifically, they increased the emphasis on integrating behavioral and physical health care, implemented screenings, and introduced BHHOs through Maine's Medicaid Health Home initiative. Practices talked about the challenges encountered with this integration and the amount of work required, suggesting that full integration of primary and behavioral health care was not realized by the end of the demonstration period. This may explain, in part, why we did not see anticipated reductions in overall growth in Medicare or Medicaid expenditures for Maine PCMH Pilot beneficiaries with behavioral health conditions compared with beneficiaries in CGs. Maine PCMH Pilot practices and CCT representatives said that this is a challenging population with which to work, and many patients are in need of services. Identifying the needed services, connecting these individuals to services, and significantly changing patterns of care may require more time than the 3-year demonstration period.

Finally, for other special populations who were not expressly identified by Maine as special populations (e.g., rural, dually eligible, and non-white Medicare beneficiaries), we found increased total Medicare expenditure growth compared with CGs. This increase in Medicare

expenditures aligned with the overall observation of higher Medicare cost growth for all Maine PCMH Pilot beneficiaries relative to comparison beneficiaries. We saw no similar patterns of changes in Medicaid costs among members of special populations.

Given the lack of consistent and complementary findings from the Medicare and Medicaid claims analyses, no conclusions can be drawn about the impact of the Maine PCMH Pilot on access to and use of health services, on the cost of those health services, or on the quality of care for special populations. However, through the integration of CCTs and BHHOs, The Maine PCMH Pilot made significant progress in identifying and connecting populations typically underserved and challenging to treat—those with the most complex conditions and those with behavioral health problems—to systems of care better equipped to serve them.

9.8 Discussion of Maine’s MAPCP Demonstration

Over the course of the 3-year demonstration, practices worked steadily toward meeting the 10 Core Expectations for a PCMH and invested significant time in learning to collaborate and coordinate with external resources such as CCTs and BHHOs. Despite challenges in meeting expectations, many practices shared their experiences learning to improve quality of care, care coordination for high-risk/high-utilization patients, and access. Practices actively changed and institutionalized their approach to delivering patient-centered care in a primary care setting, with the expectation of sustaining these changes after their participation in the Maine PCMH Pilot concludes.

Key features of the Maine PCMH Pilot throughout the MAPCP Demonstration were strong leadership and the framework provided by the 10 Core Expectations; buy-in from multiple stakeholders, including practices, payers, and state officials; a supportive environment for ongoing professional development through technical assistance to practices and CCTs; and integration of the CCTs with practices to provide care management for high utilizers and at-risk patients. Ongoing support was demonstrated by the Maine PCMH Pilot’s Phase 2 expansion to 50 additional practices and two CCTs in January 2013, MaineCare’s Health Home Initiative alignment with Maine PCMH Pilot criteria in January 2013, and a sixth payer joining the Maine PCMH Pilot in Year Three.

Care coordination was the central focus of the Maine PCMH Pilot, with Quality Counts refining the initiative and focusing on the top 5 percent of high-risk, high-utilizer patients and standardizing CCT services provided to these patients. Throughout the Maine PCMH Pilot, practices reported improved access by adding extended and weekend hours, group clinics, or telehealth services; promoted better patient engagement in their treatment plans by using EHRs to support patient education; and bolstered the efficiency and impact of the patient visits by adding pre-visit reviews by medical staff and post-visit patient summaries.

Practice transformation also included the adoption and utilization of quality-related data, with essentially all practices actively using data by Year Three to identify gaps in care and address quality performance. Practices also connected to external health IT resources. The use of HealthInfoNet increased over the demonstration period, and practices used this data warehouse to receive notices of their patients’ hospital admissions and discharges and to receive progress reports from CCTs. Practices also actively used patient portals to convey information to patients and saw acceptance and utilization by patients. To further support practices, Maine Quality

Counts provided learning collaborative sessions and webinars and made quality improvement specialists available to practices needing assistance in identifying and implementing quality improvement activities.

Despite evidence of structural changes made by Maine PCMH Pilot practices, analyses of claims-based measures provided limited or no evidence of significant improvements for either Medicare or Medicaid beneficiaries in outcomes related to quality of care, patient health, access to care, coordination of care, and service utilization and expenditures. When there were significant findings, they were often suggestive that the Maine PCMH Pilot practices were not as successful at improving quality, increasing access to care or care coordination, or reducing expenditures as were non-PCMH practices. Further, the quantitative analyses showed no particular positive impacts on special populations of interest in the Maine PCMH Pilot: those with multiple chronic conditions and those with behavioral health conditions.

A few factors may have limited the impact of the Maine PCMH Pilot on claims-based measures of access, quality, utilization, and expenditures. Practices and CCTs focused on the highest-risk patients, in the expectation that this may have been the greatest opportunity to realize savings. The integration of CCTs within practices took time, and standardizing the criteria for identifying the highest 5 percent of utilizers and patients at risk was not complete until Year Three. In addition, MaineCare's change in payment methodology was problematic for CCTs, resulting in (1) Medicaid beneficiaries not receiving CCT services for the first few months of implementation in 2013 and (2), in April 2014, the transition of care for Medicaid patients with a diagnosis of SED or SMI from CCTs to BHHOs. In Year Three, CCTs also reported a 42 percent to 47 percent refusal rate of services by patients. As a result, they found it difficult to recruit the top 5 percent of high-utilizer patients in practices' panels, further limiting their impact in the Maine PCMH Pilot.

Another factor is the considerable heterogeneity among the participating practices in the extent of PCMH transformation. Smaller practices faced greater challenges in providing enhanced access, care coordination, and EHR integration and systematic use of data to improve patient care. Practices that were part of larger health systems or also were participating in an ACO may have received extra resources for practice management, data analysis and interpretation, and care coordination. This heterogeneity also applied to the CG, with Maine reporting that some CG practices belonged to "high-performing" health systems that would have been providing support for patient-centered practice transformation. Other practices were entering the Medicaid Health Home program, which required a commitment to achieve NCQA PCMH Level 1 recognition. Still others were acquired by hospital systems, which perhaps could have provided resources necessary to support the delivery of primary care. Thus, at least some CG practices were very likely operating in an environment supportive of practice transformation to achieve greater patient-centered primary care, which leads to greater comparability between the Maine PCMH Pilot practices and CG practices. Finally, another critical factor that may have limited the impact of the pilot is the limited time of the demonstration. With approximately two-thirds of participating practices not joining the Maine PCMH Pilot until January 2013 as part of Phase 2, it is possible that there was insufficient time to see the impact of these practices.

CHAPTER 10 MICHIGAN

Overview of Michigan Evaluation Results

The Michigan Primary Care Transformation Project (MiPCT) is Michigan's multi-payer patient-centered medical home (PCMH) collaboration among three private insurers, Michigan Medicaid, and Medicare. Building on the Blue Cross Blue Shield of Michigan (BCBSM)—one of the participating private insurers—Physician Group Incentive Program (PGIP), Michigan developed a comprehensive approach to practice transformation, providing extensive training, financial support, and data to participating practices. Physician organizations served as intermediaries between the state and payers and the practices, playing an important role in facilitating practice change and administering the initiative, including the hiring of care managers to share across affiliated practices too small to sustain their own care management staff. Payments to participating practices and physician organizations, and incentive payments for practice performance, supported practice transformation and hiring of care managers.

Below are some of the key findings from the MAPCP Demonstration in Michigan:

- MiPCT was by far the largest of the state programs in the MAPCP Demonstration. Approximately 300,000 Medicare beneficiaries, 457,000 Medicaid beneficiaries, 1,700 providers, and 300 practices participated in MiPCT during the MAPCP Demonstration.
- CMS paid more than \$65 million in practice transformation, care coordination, quality incentive, and administrative fees over the course of the demonstration.
- MiPCT resulted in Medicare savings of between \$140 and \$295 million during 14 quarters of the MAPCP Demonstration, after accounting for the demonstration fees. Care managers were the heart of MiPCT and were the primary mechanism for cost savings. Care managers provided patient education, coordinated care, facilitated discharges from hospitals, and conducted medication reconciliation.
- Despite achieving significant Medicare savings, MiPCT had mixed impacts on utilization of services by Medicare beneficiaries. Medicare beneficiaries attributed to MiPCT practices had positive impacts on all-cause hospital admissions, follow-up visits within 14 days after discharge, and 30-day unplanned readmissions relative to one of the comparison groups (CGs). On the other hand, no impacts were observed for emergency room (ER), primary care, or specialist visits. With a few exceptions (e.g., improvements in all-cause hospital admissions among children with Medicaid), few impacts were observed for Medicaid beneficiaries.¹ Lack of integration with the broader health care and long-term services and supports systems, the length of time it takes to implement practice transformation, and the small number of patients

¹ Data to compute cost savings for Medicaid beneficiaries were not available.

receiving care management services might have limited MiPCT's impact on these service utilization measures.

- MiPCT resulted in few significant changes in quality outcomes for Medicare patients, but some significant positive changes for the Medicaid population. For Medicare beneficiaries, no improvement was found on diabetes control measures, despite significant attention by care managers to diabetics. For Medicaid adults, in some analyses, MiPCT was associated with improvement in most of the diabetes measures.
- MiPCT providers and Medicare beneficiaries rated their practices highly on access to care, patient engagement and self-management, quality improvement, and health information technology (health IT). Office staff, shared decision-making, and communication were particularly highly rated. Although practices received an incentive payment to provide at least 12 hours per week of access outside of regular weekday office hours, Medicare beneficiaries still saw room for improvement in access to primary care during nights and weekends.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to MiPCT, Michigan's multi-payer initiative, which launched in 2012 with Medicare's participation as a payer as part of the MAPCP Demonstration. We report findings from

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Michigan in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents, such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from MiPCT practices in Michigan more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey among Medicare FFS beneficiaries. Ten focus groups were held in Michigan: six in Grand Rapids and four in Detroit in October 2014. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid

beneficiaries. Groups ranged in size from three to eight participants, for a total of 56 participants. See *Appendix O* for more details about focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to demonstration practices in Michigan during Quarter 7. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In Michigan, a 42.6 percent response rate was achieved with a total of 599 completed surveys, both of which exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To better understand health care providers' adoption of the PCMH model of care, we fielded an online survey among all practices participating in the MAPCP Demonstration, including the primary care providers (PCPs) at the 355 Michigan practices participating in the demonstration at the time of our survey. A total of 431 providers from 201 of the 355 Michigan practices completed our survey.

This chapter is organized by major evaluation domains. *Section 10.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in MiPCT. *Section 10.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (*Section 10.3*); access to care and coordination of care (*Section 10.4*); beneficiary experience with care (*Section 10.5*); effectiveness as measured by health care utilization and expenditures (*Section 10.6*); and special populations (*Section 10.7*). The chapter concludes with a discussion of the findings (*Section 10.8*).

10.1 State Implementation

In this section, we present findings related to the implementation of Michigan's MiPCT and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of the MAPCP Demonstration?
- Were any major implementation issues encountered during the evaluation period, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in *Section 10.1.1*, which describes the major features of the state's initiative and the context in which it operates, draws on a variety of sources, including quarterly reports submitted to CMS by MiPCT staff; monthly calls among MiPCT staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. *Section 10.1.2* presents a logic model reflecting our understanding of the links among specific elements of MiPCT and expected changes in outcomes. *Section 10.1.3* presents key findings gathered from the site visits regarding the

implementation experience of state officials, payers, and providers during evaluation period. **Section 10.1.4** concludes the State Implementation section with lessons learned.

10.1.1 Michigan State Profile as of December 2014

MiPCT started on January 1, 2012. Unlike other MAPCP Demonstration states where Medicare joined a program already in operation, Medicare joined MiPCT at project launch, although some elements of MiPCT were already in place at that time. MiPCT is a collaboration among three private insurers (BCBSM, Blue Care Network [BCN]², and Priority Health), the Michigan Medicaid agency in the Department of Community Health,³ and Medicare. All participating payers, including Medicare, have agreed to extend the initiative through December 31, 2016.

Key features of MiPCT were based on BCBSM's PGIP, which started in 2005. PGIP is a set of initiatives, including payment incentives, for primary care and specialty physicians, designed to transform care delivery and improve health care quality and health outcomes. In 2008, BCBSM began a PCMH initiative within PGIP. As of December 30, 2014, all 312 of the practices participating in MiPCT were designated as PCMHs by PGIP; a few also had National Committee for Quality Assurance (NCQA) PCMH recognition, but no participating practice had only NCQA recognition.

State environment. The Michigan Department of Community Health (MDCH) provided executive leadership and management for the project. A 16-member multistakeholder Steering Committee offered strategic direction and oversight, and a core leadership team directed the project. The MiPCT Steering Committee included state government officials, physician organizations (described further in the Practice Expectations and Support to Practices sections), payers, and subject-matter experts. A Patient Advisory Council was established in 2013 and served as a resource to the Steering Committee.

Michigan experienced major political and administrative changes throughout program implementation, including a new governor in 2011 and new directors of the Department of Community Health in 2012 and 2014. The state also faced budget deficits in fiscal years 2011 and 2012. These events did not have any apparent effect, however, on program implementation, and political support for the initiative remained strong throughout the demonstration period.

In addition to PGIP, several other concurrent programs operating in the state may have influenced outcomes for MiPCT participants or the CG population:

- MDCH worked with local health departments and community agencies to assist physician organizations and practice staff in accessing public health and community services.
- Three Michigan physician hospital organizations were chosen as Pioneer accountable care organizations (ACOs), which tested alternative payment arrangements to

² BCN is a nonprofit health maintenance organization owned by BCBSM.

³ In 2015, Michigan reorganized its Executive Branch. Medicaid is now under the new Michigan Department of Health & Human Services.

integrate care delivery systems, achieve better outcomes, and lower costs. Two of the three organizations later withdrew from the Pioneer ACO initiative (the University of Michigan Health System in 2013 and Genesys in 2014) and joined the Medicare Shared Savings Program.

- BCBSM administered an ACO-like program called Organized Systems of Care. In this initiative, some specialists were eligible to receive PCMH-neighbor designation, indicating that the specialist has a partnership with primary care physicians to ensure a PCMH type of care across providers.
- In February 2013, Michigan received a \$1.6 million Model Design award in the first round of the State Innovation Model initiative. The award helped the state further develop and refine its care innovation plan, in which PCMHs were a central feature. In the second round of funding (December 2014), Michigan received a \$70 million Model Test award.
- In December 2013, the U.S. Department of Health and Human Services approved Michigan's Section 1115 Research and Demonstration waiver application to expand Medicaid coverage to adults with income of up to 133 percent of the federal poverty level (FPL), under the Healthy Michigan Plan.⁴ Enrollment in the Healthy Michigan Plan began in April 2014; more than 500,000 individuals enrolled as of January 12, 2015, including some who transitioned from the Adult Benefits Waiver (MDCH, 2015). Healthy Michigan Plan enrollees were eligible to participate in MiPCT.
- Michigan had four CMS Community-Based Care Transitions programs, all of which included partnerships with practices or health systems participating in MiPCT. These programs sought to improve care transitions from the hospital to other care settings and reduce readmissions for Medicare beneficiaries.

Demonstration scope. Michigan's initiative was by far the largest among the MAPCP Demonstration states. *Table 10-1* shows participation in MiPCT at the end of Years One, Two, and Three of the demonstration. Overall, 1,175,586 individuals participated in MiPCT at the end of Year Three of the MAPCP Demonstration, an increase of 14 percent over the course of the demonstration. The cumulative number of Medicare FFS beneficiaries that ever participated in the demonstration for 3 or more months increased by 32 percent between the first and last years of the evaluation period, even though the number of participating practices with attributed Medicare FFS beneficiaries decreased slightly from 331 at the end of Year One (December 31, 2012) to 312 at the end of Year Three (December 31, 2014). The increase in number of Medicare FFS beneficiaries participating is likely because the number of providers at participating practices increased by 22 percent over this period, from 1,404 to 1,709. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, but, in each year, pediatric practices participating in MiPCT and receiving Medicaid payments were included. As a result, the number of Medicaid participating practices was higher than the number of Medicare participating practices. The cumulative number of Medicaid beneficiaries who ever participated

⁴ The Affordable Care Act expanded Medicaid eligibility to individuals with incomes up to 133 percent of the FPL; however, there is a 5 percent income disregard, so the income limit is effectively 138 percent of the FPL.

for 3 or more months increased by 76 percent, from 259,123 to 456,877, over the evaluation period. The total number of practices, including those not serving Medicare or Medicaid beneficiaries, declined slightly from 388 at the end of Year One to 355 at the end of Year Three.

Table 10-1
Michigan: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants⁵ participating in MiPCT

Participating entities	Number as of December 31, 2012	Number as of December 31, 2013	Number as of December 31, 2014
Medicare			
MiPCT practices ¹	331	314	312
Participating providers ¹	1,404	1,618	1,709
Medicare FFS beneficiaries ²	226,369	267,568	299,907
Medicaid			
MiPCT practices ³	401	380	378
Medicaid beneficiaries ³	259,123	358,941	456,877
All-payer			
MiPCT practices ⁴	388	360	355
Participating providers ⁴	1,772	1,841	1,820
All-payer participants ⁴	1,033,462	1,151,518	1,175,586

NOTES:

- For Medicare, MiPCT practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices. The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating MiPCT practices and participated in the demonstration for at least 3 months. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- For Medicaid, MiPCT practices include only those practices with attributed Medicaid beneficiaries. The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating MiPCT practices and participated in the demonstration for at least 3 months.
- The number of participating Medicaid providers could not be determined using the Medicaid FFS claims and managed care encounter files.
- Michigan provided Medicaid beneficiary attribution files starting in April 2012, so identification of the study sample began in April 2012, instead of January 2012. Therefore, Medicaid practice and beneficiary counts represent the numbers as of March 31, 2013; March 31, 2014; and December 31, 2014.
- The all-payer numbers are derived from the state using their own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project.

SOURCES: ¹ARC MAPCP Demonstration Provider File; ²ARC Beneficiary Assignment File; ³Michigan Medicaid enrollment and claims files (see Chapter 1 for more details about these files); ⁴Michigan Quarterly Reports to CMS.

⁵ The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a MiPCT practice and participated in MiPCT for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent to treat design of our evaluation. The number of all payer participants also represent the number of individuals who were ever attributed to a MiPCT practice.

Five payers participated in MiPCT: Medicare FFS (16% of total participants as of December 2014), Medicaid managed care (17%), BCBSM (34%), BCN (23%), and Priority Health (10%). The state Medicaid agency made payments on behalf of managed care plans participating in Medicaid, which are reported collectively as one participating payer. The three commercial plans participated on behalf of their commercial products, including some, but not complete, participation among self-insured purchasers. Other commercial payers initially expressed their intent to participate but later chose not to join. MiPCT staff continued to engage nonparticipating payers.

Table 10-2 displays the characteristics of the practices that participated in MiPCT as of the end of Year Three. There were 312 participating practices with attributed Medicare FFS beneficiaries, with an average of five providers per practice. Most of these were office-based practices (94%). An additional 3 percent were rural health clinics (RHCs), and 3 percent were federally qualified health centers (FQHCs). There were no critical access hospitals (CAHs). Ninety percent of practices were located in metropolitan counties, 7 percent in micropolitan counties, and 3 percent in rural counties. The number of Medicaid practices participating in MiPCT is higher than the Medicare number participating because there are pediatric practices participating in MiPCT; these practices are included in the Medicaid analysis. Practice type is similar between the Medicare and Medicaid practices.

Table 10-2
Michigan: Characteristics of practices participating in MiPCT as of
December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	312	378
Number of providers (total)	1,709	—
Number of providers per practice (average)	5	—
Practice type (%)		
Office-based practice	94	95
FQHC	3	2
CAH	0	0
RHC	3	3
Practice location type (%)		
Metropolitan	90	—
Micropolitan	7	—
Rural	3	—

NOTES:

- Michigan did not provide a count of the unique number of participating MAPCP Demonstration Medicaid providers.
- Practice location type could not be determined using the Medicaid claims files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; RHC = rural health clinic; — = data not available.

SOURCE: ¹ARC Q13 MAPCP Demonstration Provider File; ²Michigan Medicaid enrollment and claims files. (See Chapter 1 for more details about these files.)

In **Table 10-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating MiPCT practices during the first 12 quarters of the MAPCP Demonstration (January 1, 2012, through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration are not included in our evaluation or in this analysis. Twenty percent of beneficiaries assigned to MiPCT practices participating in the MAPCP Demonstration were under the age of 65; 47 percent were ages 65–75; 24 percent were ages 76–85; and 9 percent were over age 85. The mean age was 70. Beneficiaries were mostly White (86%) and lived in urban areas (82%), and 58 percent were female. Sixteen percent were dually eligible for Medicare and Medicaid, and 27 percent were eligible for Medicare originally due to disability. One percent of beneficiaries had end-stage renal disease (ESRD), and 1 percent resided in a nursing home during the year prior to their assignment to a MiPCT practice.

Table 10-3
Michigan: Demographic and health status characteristics of Medicare FFS beneficiaries participating in MiPCT from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	299,907
Demographic characteristics	
Age < 65 (%)	20
Age 65–75 (%)	47
Age 76–85 (%)	24
Age > 85 (%)	9
Mean age	70
White (%)	86
Urban place of residence (%)	82
Female (%)	58
Dually eligible beneficiaries (%)	16
Disabled (%)	27
ESRD (%)	1
Institutionalized (%)	1
Health status	
Mean HCC score groups	1.04
Low risk (< 0.48) (%)	25
Medium risk (0.48–1.25) (%)	52
High risk (> 1.25) (%)	24
Mean Charlson Comorbidity Index score	0.8
Low Charlson Comorbidity Index score (= 0) (%)	64
Medium Charlson Comorbidity Index score (≤ 1) (%)	18
High Charlson Comorbidity Index score (> 1) (%)	19
Chronic conditions (%)	
Essential hypertension	33
Lipid metabolism disorders	18
Diabetes without complications	17
Coronary artery disease	12
Cardiac dysrhythmias and conduction disorders	9
Other respiratory disease	9
Acute and chronic renal disease	7
Anemia	7
Dizziness, syncope, and convulsions	6

(continued)

Table 10-3 (continued)
Michigan: Demographic and health status characteristics of Medicare FFS beneficiaries participating in MiPCT from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	
Disorders of joint	6
Hypothyroidism	6
Heart failure	5
Chest pain	5
Urinary tract infection	5
Diabetes with complications	4
Renal failure	3
Valve disorders	2
Peripheral vascular disease	2
Malaise and fatigue (including chronic fatigue syndrome)	2
Cardiomyopathy	1
Dementias	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year for which a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in metropolitan or micropolitan statistical areas defined by the Office of Management and Budget.

EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe Medicare beneficiaries’ health status during the year before their assignment to a MiPCT practice. HCC scores for Medicare beneficiaries assigned to a MiPCT practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to a MiPCT practice had a mean HCC score of 1.04, meaning that Medicare beneficiaries were predicted to be four percent more costly than an average Medicare FFS beneficiary.

Beneficiaries’ average score on the Charlson Comorbidity Index was 0.80; just under two-thirds (64%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before assignment to a participating MiPCT practice.⁶ The most common chronic conditions diagnosed were

⁶ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of zero indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples’ Charlson Comorbidity Index, the greater morbidity in the study sample.

hypertension (33%), lipid metabolism disorders (18%), diabetes without complications (17%), and coronary artery disease (12%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In **Table 10-4**, we report demographic and health status characteristics of Medicaid beneficiaries who were assigned to participating MiPCT practices during the evaluation period (January 1, 2012, through December 31, 2014). Sixty-six percent of the Medicaid beneficiaries assigned to MiPCT practices during the evaluation period were children, with a mean age of 7 years, and the remaining 34 percent of Medicaid beneficiaries were adults, with a mean age of 36 years. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in the Medicare table above. Most Medicaid beneficiaries in MiPCT resided in an urban area (84% to 88%). Fifty percent of the Medicaid children were female, and 61 percent of MiPCT Medicaid adults were female. A little over half of the Medicaid non-dually eligible enrollees were White. Only 5 percent of Medicaid children were eligible for Medicaid due to disability, compared with 25 percent of adults. Medicaid children had relatively few chronic conditions (5% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score.⁷ In contrast, Medicaid adults had significantly more chronic conditions (30% had three or more chronic conditions) and a CDPS score of 1.1.

Table 10-4
Michigan: Demographic and health status characteristics of Medicaid beneficiaries participating in MiPCT from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	300,041	156,836
Demographic characteristics		
Mean age	8	37
White (%)	55	61
Urban place of residence (%)	88	84
Female (%)	50	67
Medicaid eligibility due to disability (%)	4	25
Other Medicaid eligibility (%)	96	75
Institutionalized (%)	0	0.1

(continued)

⁷ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples' CDPS scores, the greater the morbidity in the study sample.

Table 10-4 (continued)
Michigan: Demographic and health status characteristics of Medicaid beneficiaries participating in MiPCT from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Health status		
Mean CDPS score groups	0.91	1.1
Low birth weight and serious perinatal problems (%)	3	0
Mean number of chronic conditions	0.63	1.8
0 chronic conditions	60	42
1–2 chronic conditions	34	28
3 or more chronic conditions	5	30

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MiPCT eligibility criteria.
- Demographic and health status characteristics are calculated using Michigan Enrollment and Claims files, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of MiPCT.
- Urban place of residence is defined as those beneficiaries living in metropolitan or micropolitan statistical areas defined by the Office of Management and Budget.

CDPS = Chronic Illness and Disability Payment System; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

SOURCE: Michigan Medicaid Enrollment, Claims, and Managed Care Encounter files.

Practice expectations. Practices participating in MiPCT were expected to meet four core requirements. First, practices had to attain PCMH status by July 2010, before the demonstration, and maintain that status. Practices could secure PCMH status either through PGIP PCMH designation or NCQA PCMH Level 2 or Level 3 recognition. As noted above, all participating practices were PGIP-designated; a small number of the practices also had NCQA recognition.

Under PGIP, a practice’s PCMH score was calculated using both process and outcome measures. A primary care practice’s PCMH capacity was measured across 12 “domains of function” developed by BCBSM and physician organizations. These domains included individual care management, self-management support, preventive services, and coordination of care. Each domain included several specific PCMH capabilities. Practice scores also were based on performance in certain areas demonstrating successful implementation of the PCMH model, such as increased use of preventive services, increased generic drug use, and decreased diagnostic imaging utilization. BCBSM and MiPCT staff believed that the PGIP standards were more rigorous than those of NCQA.

Certain domains within PGIP (i.e., registry functionality, expanded access, performance reporting, and care management staffing requirements) were “must-pass” standards for MiPCT participation; that is, practices not meeting these requirements could not participate in MiPCT. BCBSM standards required referral and tracking capacity between specialists and PCPs.

Second, practices had to be affiliated with a participating physician organization. Physician organizations had a long history in Michigan; originally they mainly handled managed care contracting, but they also provided substantial administrative support to practices participating in PGIIP and the MiPCT initiative. The physician organizations simplified administration and played a critical role in the project.

Third, MiPCT required either the practice or the relevant physician organization to hire care managers to provide care coordination and case management to patients. Care managers were the heart of the project and the primary mechanism for cost savings. Mandatory staffing ratios were established at the physician organization level and were monitored regularly via quarterly reporting to ensure sufficiency of care manager staffing. Originally, MiPCT expected one moderate and one complex care manager (two total) for every 5,000 patients served by a physician organization. They further anticipated that moderate care managers would work primarily with medium-risk patients, although complex care managers would work only with those patients at highest risk. Initially, care managers received patient risk scores assigned by each payer using its own method (if any). Later, the Michigan Data Collaborative (MDC) used the Diagnostic Cost Group method to assign risk scores to all patients attributed to a practice, across all payers, and care managers received those reports.

Practices were not required to use these data to identify patients to receive care management. Practices and physician organizations raised concerns that the staffing model did not adequately meet the needs of small practices with fewer complex patients or pediatric practices and that there was significant overlap between patient populations. This led to the development of a hybrid care manager—one who could work with patients with moderate or complex needs. The staffing requirement for hybrid care managers was effectively 1:2,500 (two care managers for every 5,000 patients). As MiPCT evolved, the vast majority of care managers functioned as hybrids. Project staff reported that the number of care managers varied from month to month, but averaged about 420 statewide in 2014.

Fourth, physician organizations and practices signed annual participation agreements with the state; these required compliance with contractual obligations, including participation in learning activities (although there was no standard curriculum). The learning activities, designed to identify and spread best practices, included regional meetings, learning collaboratives, and webinars. Furthermore, physician organizations were allowed to develop and lead their own learning activities for their practices, which, with MiPCT approval, counted toward meeting the learning requirements. Participation in select learning activities was required for practices and physician organizations failing to meet performance expectations on MiPCT performance incentive metrics.

Support to practices. Practices participating in MiPCT received support in the form of financial payments, technical assistance, and data from MDC.

MiPCT had a complex payment system designed to provide financial incentives and rewards to practices, with payment schedules and methodologies varying by payer. All payers financially supported the participating practices and physician organizations through three types of payments: practice transformation payments, care coordination payments, and incentive payments (*Table 10-5*):

- *Practice transformation payments.* Practices received these payments directly. The funds were intended to compensate practices for their investment in and operational costs of building PCMH infrastructure, such as purchasing all-patient registry software.
- *Care coordination payments.* These payments were made to physician organizations to fund care management services. Physician organizations kept the payment for the care managers they hired and passed the care management payment on to practices hiring their own care managers. Physician organizations submitted quarterly financial reports to MiPCT to ensure that care management payments were spent only on care management activities.
- *Incentive payments.* Payers made incentive payments into a pool administered by the University of Michigan Health System; these payments were disbursed to physician organizations semiannually. The pooled funding was distributed to physician organizations based on their affiliated practices' performance on metrics chosen by the MiPCT Performance Incentive Committee. There were four performance metric sets: a 6-month set, a 12-month set, a 2013 Year Two set, and a 2014 Year Three set. Over time, the incentive metrics shifted from rewarding improvements in process (e.g., registry functionality or care management staffing) to rewarding improvements in care outcomes (e.g., reduced ambulatory care-sensitive hospitalizations). The first set of incentive payments was distributed in January and February 2013, and payments were then made semiannually thereafter. Physician organizations were required to pass through at least 80 percent of the payments to their practices. MiPCT imposed no restrictions on how practices and physician organizations used their incentive payments, and there was deliberately no monitoring of how the money was spent.

To receive these payments, physician organizations and practices were required to hire and train at least 80 percent of the care managers necessary to meet program staffing requirements.

Table 10-5
Michigan: PMPM and PBPM MiPCT payment amounts

Payment type	Medicare	Medicaid managed care	Commercial
Practice transformation	\$2.00	\$1.50	\$1.50 ¹
Care coordination	\$4.50	\$3.00	\$3.00 ¹
Incentive	\$3.00	\$3.00	\$3.00 ¹
Administrative (paid to MiPCT)	\$0.26	\$0.26	\$0.26
Total	\$9.76 ²	\$7.76	\$7.76

NOTE: At the start of the project, BCBSM calculated an amount to pay for each care coordination service that would result in a total amount paid to the physician organizations and practices through the FFS care management payments; this equaled the amount paid through the PMPM care management payments. This amount was based on assumptions about how many patients would need care management services and the caseload carried by each care manager.

¹ Commercial plans made payments to MiPCT practices that were equivalent to these amounts, but via other mechanisms, such as enhanced payments for certain procedure codes under an FFS system, or a hybrid of FFS and PMPM payments, or a separate incentive bonus. For some payments, some commercial plans agreed to pay supplemental payments if necessary to achieve the equivalent PMPM level for MiPCT.

² The Medicare PBPM payment amount does not reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

BCBSM = Blue Cross Blue Shield of Michigan; FFS = fee-for-service; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PMPM = per member per month.

Medicare and Medicaid used a per beneficiary per month (PBPM) payment methodology for all payments. From January 1, 2012, through December 31, 2014, CMS paid a total of \$65,073,848 in MAPCP Demonstration fees for the 299,907 Medicare beneficiaries participating in MiPCT (**Table 10-6**). The average Medicare payment per practice over the 3 years of the demonstration was \$164,328. The average payment per practice goes up over time, but the total payments go down over time, which is explained by the fact that the number of beneficiaries attributed to practices goes up but the number of participating Medicare practices go down over time. Medicare paid a higher amount than commercial insurers and Medicaid because a greater proportion of Medicare beneficiaries were assumed to need care management services. Beginning in April 2013, Medicare payments were reduced by 2 percent as a result of federal sequestration, which began in April 2013.

Commercial plans made FFS payments designed to be equivalent to the PBPM payments for practice transformation, care coordination, and incentive payments. Commercial plans already making payments for non-administrative components before joining MiPCT were not required to make additional payments to support those activities.

Table 10-6
Michigan: Average Medicare MAPCP Demonstration payments per practice
by year and overall

Year	Average Medicare payment per practice ¹	Total Medicare payments ¹
Year One	\$62,224	\$21,965,075
Year Two	\$62,557	\$21,895,077
Year Three	\$66,293	\$21,213,696
Overall	\$164,328	\$65,073,848

NOTES:

- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.
- Total Medicare payments includes payments to practices and physician organizations.

MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: ¹Medicare claims data.

BCBSM and Priority Health paid practice transformation and care coordination payments on an FFS basis. Practice transformation payments were paid to practices and physician organizations using an enhanced fee schedule for certain procedure codes. The care manager's employer (either the practice or the physician organization) billed for their services. BCBSM committed to making additional payments to providers in the event that the evaluation and management and care management (G-code) billings were not actuarially equivalent to the payment levels agreed upon for MiPCT.

BCN, a health maintenance organization owned by BCBSM, took a hybrid approach. BCN paid practice transformation payments as a per member per month (PMPM) amount. This payment already was built into the payment rate for capitated practices when the project began, but it was a new payment to noncapitated practices. Like BCBSM and Priority Health, BCN paid for care coordination on an FFS basis through the use of procedure codes.

Incentive programs also varied across payers. BCBSM, BCN, and Priority Health had their own incentive programs, aside from MiPCT, that paid bonuses for different PCMH capabilities and quality of care measures. Although each insurance plan maintained its own incentive program, all were required to show that they paid the actuarial equivalent of \$3 PMPM, the amount required by MiPCT, to participating practices. Medicare and Medicaid paid a PBPM amount into an incentive fund, and those incentives were divided among physician organizations and practices. Unlike BCBSM and BCN, Priority Health did not commit to making supplemental payments if their payments fell below the amounts in *Table 10-5*.

As discussed earlier, every MiPCT practice had to be affiliated with a participating physician organization. Physician organizations had many responsibilities in the project. They collected data and submitted required reports on behalf of the practices; they communicated project expectations to participating practices and helped practices meet those requirements; they hired care managers to share across affiliated practices too small to sustain their own care management staff; and they distributed the MiPCT care coordination and incentive payments.

MiPCT also supported practices through the Michigan Care Management Resource Center, which offered initial training, ongoing learning activities, and a Web site of resources—all funded through a portion of the \$0.26 PMPM administrative fee, which all payers paid for program management, evaluation, data analytics, and learning activities. With regard to initial training, the Care Management Resource Center, in partnership with Geisinger Health Plan, developed a 5-day course for care managers working with complex patients; this course was eventually scaled back. Ongoing educational opportunities included a series of webinars and in-person summits; four waves of learning collaboratives were launched between November 2012 and June 2013. The learning collaboratives focused on the role of the care manager and how to embed care managers within practices effectively. Care managers and practice teams were trained to provide self-management support, care coordination, and links to community services. The learning collaboratives consisted of three in-person meetings, webinars, and conference calls. A second wave of four learning collaboratives was held between January and May 2014, and additional ad hoc collaboratives were held as necessary (e.g., an all-payer billing collaborative and a diabetes collaborative for low-performing physician organizations). Finally, the Web site was designed to support practices and physician organizations in adopting and refining best practices. Available resources included tools and materials on care management, self-management support, care coordination, links to the community, and palliative care.

In addition, MDC provided data analytic support for MiPCT by calculating risk scores for patients and supplying a data dashboard to physician organizations through a Web portal. The dashboard drew from claims, encounter, eligibility, and attribution data from multiple payers. It enabled physician organizations to assess their performance compared with their peers and to drill down to the practice and individual patient level. The dashboard was updated bimonthly and included data back to January 2010. The dashboard was launched in October 2012 with Medicare and Medicaid data and limited capabilities. MDC added BCBSM, BCN, and Priority Health data in 2013. The MDC continued to add new capabilities and reports for participating physician organizations, and, in 2014, began to integrate claims data with registry-reported clinical data, resulting in more robust measurement and analysis.

Starting in December 2012, MDC began providing the All-Payer Patient List to participating physician organizations. This list, prepared monthly, provided physician organizations with a list of all patients attributed to a physician organization practice and therefore eligible for MiPCT care management services. It included patients covered by any of the five payers participating in MiPCT and supplied a variety of information about patients, including risk scores and the number of emergency room (ER) and PCP visits in the previous 6 months. Beginning in late 2013, physician organizations also had the opportunity to participate in a pilot program in which care managers received real-time hospital admission, discharge, and transfer data from participating health systems.

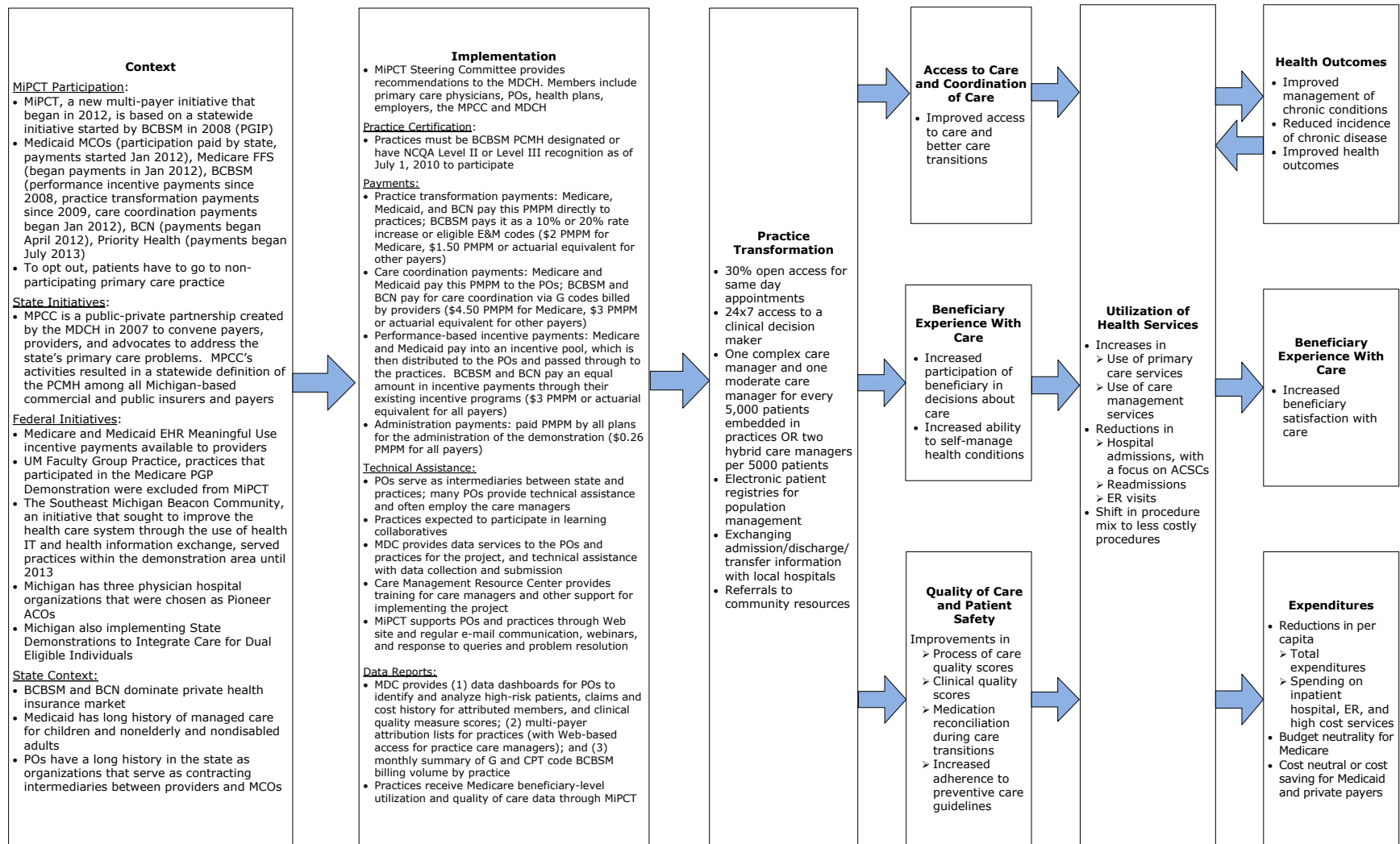
10.1.2 Logic Model

Figure 10-1 is a logic model of MiPCT meant to depict the hypothesized relationship between specific elements of MiPCT and changes in outcomes. The first column describes the context for the project, including the scope of MiPCT, other state and federal initiatives affecting the initiative, and key features of the state context affecting the demonstration, such as the BCBSM PGIP and the physician organizations serving as contracting intermediaries between

providers and managed care organizations (MCOs). The project context informed the implementation of MiPCT, which incorporated several strategies to promote transformation of practices to PCMHs.

Beneficiaries in these transformed practices were expected to have better access to care and more coordinated care; to receive safer, higher-quality care; and to be more engaged in decision making about their care and management of their health conditions. These improvements in care were intended to promote more efficient utilization patterns, including increased use of primary care services and reductions in inpatient admissions, readmissions within 30-days after discharge, and ER visits. These changes in utilization patterns were expected to produce improved health outcomes (which could, in turn, reduce utilization), greater beneficiary satisfaction with care, changes in expenditures consistent with utilization changes, and reductions in total per capita expenditures, ensuring budget neutrality for the Medicare program and cost savings for other payers.

Figure 10-1
Logic model for Michigan Primary Care Transformation Project



ACO = accountable care organization; ACSC = ambulatory care sensitive conditions; BCBSM = Blue Cross Blue Shield of Michigan; BCN = Blue Care Network; EHR = electronic health record; ER = emergency room; FFS = fee for service; IT = information technology; MCO = managed care organization; MDC = Michigan Data Collaborative; MDCH = Michigan Department of Community Health; MiPCT = Michigan Primary Care Transformation Project; MPCC = Michigan Primary Care Consortium; NCQA = National Committee for Quality Assurance; PCMH = patient-centered medical home; PGIP = Physician Group Incentive Program; PGP = physician group practice; PMPM = per member per month; PO = physician organization; UM = University of Michigan.

10.1.3 Implementation

This section uses primary data gathered from Michigan site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 10.1*.

Major changes during the evaluation period. The addition of Priority Health in July 2013 was one of the most significant changes during the evaluation period, particularly for providers in western Michigan, where this payer has a large market share. The addition of Priority Health reportedly was driven, in part, by demand from their provider network to offer MiPCT care management services to patients on their panels. Although the addition of Priority Health did not require changes to MiPCT, the payer had to develop new billing mechanisms for care coordination to ensure that their high-deductible health plan members were not financially liable for the new services.

Over the course of the evaluation period, MiPCT leaders actively worked with stakeholders to improve and refine the program. Additional data capabilities supporting practices and care managers were built into MiPCT over time, including the launch of real-time hospital admission, discharge, and transfer notifications. In 2013, MiPCT leaders formed two new advisory groups (the Patient Advisory Group and the Stewardship and Performance Group) to guide program design and implementation. The following year, MiPCT expanded its clinical focus areas to include behavioral health and palliative care.

Major implementation issues during the evaluation period. Nearly all of MiPCT's major implementation issues were related to care management. Embedding care managers proved particularly challenging for some practices. Further, identifying individuals who would most benefit from care management was difficult, and care manager caseloads were lower than expected. Participating providers also experienced significant issues billing commercial plans for care management services throughout the evaluation period. Some of these issues stemmed from difficulties that providers and physician organizations had in identifying patients eligible for care management services, even after the availability of the All-Payer Patient List. Both the plans and MiPCT staff devoted substantial time and resources to helping providers bill; this included launching an all-payer billing collaborative in fall 2014. In addition, providers noted that lags in claims data limited the utility of MDC dashboards, and some payers and providers we interviewed expressed disagreement with the algorithm that MDC used to calculate patient risk.

External and contextual factors affecting implementation. MiPCT was the largest state initiative within the MAPCP Demonstration, but participation was lower than anticipated. Michigan received seven letters of support from commercial payers when it submitted its application to participate in the MAPCP Demonstration, but only two—BCBSM and BCN—joined at launch. Many commercial payers were hesitant to participate in a program so heavily influenced by BCBSM's PGIP. Financial participation by self-insured employers was also lower than expected, although their participation increased over time. Despite limited payer participation, MiPCT leaders and providers felt that another key component of PGIP—the role of the physician organizations—eased implementation. Instead of working individually with more than 300 practices, MiPCT leaders could work with the 37 physician organizations with which

the providers were affiliated. Furthermore, physician organizations reduced the time that practices had to spend on administration, increasing their ability to focus on improving patient care.

10.1.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, embedding care managers in primary care practices takes significant time and resources. Successful embedding results in changed workflows, and this requires provider buy-in. It also takes significant time for practices and care managers to develop protocols to identify which individuals would most benefit from care management services. As one state official noted, “Integrating care managers is much more than plopping a person in a practice.” Second, practices need nonfinancial support from the state and payers to facilitate practice transformation. Ongoing training and learning opportunities have been a hallmark of MiPCT. Third, acknowledging the time it takes for practices to transform, payers must be realistic when setting program goals. Michigan was one of only two demonstration states where Medicare joined a new multi-payer initiative. Throughout the site visits, stakeholders were skeptical that 3 years was enough time to show the full impact of the model, especially for changes in population health.

Finally, using a commercial payer’s practice standards as the basis of a multi-payer initiative presents unique benefits and challenges. All participating MiPCT practices had already received PGIP PCMH designation, which encouraged practices to participate. Michigan might have been more successful in recruiting other commercial payers, however, if the practice standards were not tied to their competitor’s initiative. Even though MiPCT included NCQA PCMH recognition as one path to participation, the commercial payers in the state viewed MiPCT as an extension of PGIP. That said, MiPCT successfully added Priority Health in 2013 and self-insured employers throughout the demonstration, showing that some payers are willing to join later.

10.2 Practice Transformation

This section begins by describing the changes practices had to make to take part in the demonstration and patients’ awareness of these changes, drawing on data from our focus groups and our three site visits (*Section 10.2.1*). We then present practices’ experiences using technical assistance provided as part of the demonstration (*Section 10.2.2*) and practices’ views on the payment model used in this demonstration (*Section 10.2.3*), drawing on data from our site visits. Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (*Section 10.2.4*). We then synthesize the site visit and survey findings in *Section 10.2.5*.

10.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. A key feature of MiPCT was that practices needed to be designated or certified as a PCMH before the start of the project. All participating practices had BCBSM’s PCMH designation through PGIP well before the start of the MAPCP Demonstration. As a result, they were already familiar with the PCMH concept and had begun transforming their practices before MiPCT began. There were, however, several additional requirements that were not part of BCBSM’s PCMH designation. To participate in

MiPCT, practices had to provide 24 hour/7 day a week availability of a clinician to patients, modify their appointment system so that at least 30 percent of daily appointments are available for same-day appointments, and establish an electronic disease registry (either as part of an electronic health record [EHR] or as a stand-alone system). Many practices reported that they had these features before MiPCT began. Practices needing to implement these changes to join MiPCT reported success in implementing them, although smaller practices struggled.

The central innovation of MiPCT was the introduction of care managers into the PCMH practices. A key change over the course of the demonstration was the overwhelming use of a single hybrid model of care management, a departure from the original plan to have moderate care managers, who would focus on patient education for people with chronic conditions, and complex care managers, who would focus on care transitions.

Not unexpectedly, the focus of activity regarding care managers changed over time. At the beginning, the focus was on hiring and training the care managers and providing them with the logistical essentials, such as a place to sit and a telephone, as well as clarifying the care manager's role in the practice. In Year Two, care managers focused on building their caseloads and establishing ongoing relationships with physicians and patients. In both our site visits and the Michigan Public Health Institute (MPHI) survey, care managers reported building their caseloads in a variety of ways, mainly by physician referrals and the All-Payer Patient List. According to the MPHI survey, 91 percent of care managers reported receiving patients by physician referral, 79 percent received patients from the MiPCT-provided All-Payer Patient List identifying patients eligible for case management, and 61 percent reviewed patients scheduled for visits to see who was eligible for care management.

Integrating care managers into the practices was not self-evident and required education and experimentation. One way of building physician engagement and increasing care management integration was team huddles, mentioned by several practices as something they instituted. Overall, care managers reported frequent communication with physicians about their MiPCT patients. Sometimes, however, it took several months to work out a routine in which care managers could work comfortably and efficiently with a practice.

A key effort in improving processes was integrating information on patients' hospital admissions, discharges, and transfers (ADTs) into the care management workflow. Practices varied in their access to ADT information and how they used it. Some practices, especially those affiliated with a health system, automatically received ADT information daily. Other practices had lag times in receiving ADT information, and they often relied on faxed discharge summaries to identify patients who had been to the hospital or ER. Improving ADT information across the demonstration was an ongoing effort.

As time passed, care managers reported that physicians' trust in them and their work increased because physicians saw positive results in patients after the care manager's intervention. In one practice, the physician agreed to institute standing orders for appropriate referrals to the care manager, eliminating the need for the office manager to process individual referrals. Most practices acknowledged that it took a long time for the physician and the rest of the practice to see the care manager as part of the care team, but they said that embedding improved over time. Integration was slower, however, in practices where the care manager was

not in the office every day (i.e., shared among two or more practices). During the Year Two site visit, care managers noted that one of their most important roles was linking patients to community resources for mental health services and transportation.

In Year Three, physicians and care managers engaged patients in activities supporting care improvement in the clinical focus areas of diabetes, depression, and palliative care. One physician organization reported that, with MiPCT support, they were able to use a diabetes educator for group education programs. Several care managers reported that their practice implemented a depression screening tool. More physicians and care managers reported conversations with patients about advance directives, during either office appointments or care management assessment visits. During the Year Three site visit, physicians and care managers noted care managers' efforts in connecting patients with support services and long-term services and support, such as home health, respite, and adult day care—and in educating the rest of the practice about available community resources.

Overall, MiPCT practices appeared to successfully implement the MiPCT PCMH model. Nonetheless, practices had three major difficulties. First, a major concern was the restriction of care management services to patients on the All-Payer Patient List of eligible patients, which might have been more aptly called the multi-payer patient list because not all payers were represented. Sometimes doctors were confused about who was eligible and who was not, leaving it to the care managers and practice nurses to sort it out. Care managers frequently reported a lack of understanding about how the list worked—patients who were eligible would later lose eligibility, or patients who they thought should be eligible and would benefit from services were not on the list.

Second, some practice staff and other stakeholders were frustrated by the discrepancies between risk scores assigned from historical claims data and their real-time assessment of patient risk based on physicians' opinions and medical record data. From the perspective of one physician organization, this led to a misallocation of care manager time in assessing patients on a high-risk list who were not actually high risk. In contrast, some physician organizations required their practices to schedule time during regular practice hours (i.e., give up a block of time otherwise spent in patient office visits) to allow physicians and care managers to meet and discuss the list of patients to determine who should receive care management services.

Third, care managers in some practices were asked to do data entry, scheduling, and other administrative tasks that did not make good use of their care management skills, but for which the practice had no other staff available.

Because practices had to be PMCH certified either by BCBSM's PGIP program or by NCQA *before* their entry into the demonstration, *becoming* certified was not an issue in Michigan. The vast majority of practices were able to maintain their certification over the course of the demonstration, although a few practices did lose their certification or left because of failing to meet standards. Moreover, although the vast majority of practices interviewed indicated their intention to remain in MiPCT, there was some discussion of whether payment incentives from other payer initiatives, including Medicare, would enable them to achieve their goals without having to comply with MiPCT paperwork. Nonetheless, interviewed practices

were overwhelmingly supportive of MiPCT and thought that it played a positive role in practice transformation in the state.

Practice staffing changes. The most important staffing change related to MiPCT was the hiring, training, and embedding of the care managers. Given the large number of people to be hired, MiPCT virtually invented care management in Michigan by financing the hiring of more than 400 care managers. Care managers were employed either directly by practices or by physician organizations, where they typically serviced multiple smaller practices. Having an embedded care manager was the feature that made participation in MiPCT distinct from participation in other PCMH initiatives in the state (e.g., BCBSM's PGIP). Care managers also received standardized training.

In Year One, care managers working with complex patients were required to complete a Complex Care Management course from the Michigan Care Management Resource Center, developed in partnership with Geisinger Health Plan, and all care managers had training requirements (described earlier in the Support to practices section). Beyond completing training requirements, care managers in Year One addressed mundane administrative issues involving their placement into the practice. Most care managers reported relatively good communications with the practice physicians and staff, either in person ("they're just down the hall") or by phone. During Year One, care managers were feeling their way into the operations of the practices, and sometimes they were unsure of how they should identify patients to work with, what types of services they should provide, and what the balance should be between long-term patient education and shorter-term hospital and ER admission and discharge.

During Year Two, the central task was to complete the integration of care managers into the program. According to MiPCT data, about half of care managers were employed by physician organizations, with the rest about evenly split between practices and health systems. Moreover, about 70 percent of care managers worked with only one practice; 23 percent worked with two, three, or four practices; and 7 percent worked with five or more practices. In a separate survey conducted by MPHI, care managers self-reported working with an average of 8.4 physicians.

During Year Three, practices refined the ways in which care managers were embedded in the care team. In contrast to some findings from the Year Two site visit, most care managers in Year Three had access to office space, phones, and computers, and they established good lines of communication with practice physicians. All practice staff noted that care managers were busy, juggling their time between assessing patients who were likely candidates for care management, offering education on chronic disease self-management to patients referred by the physician, and following up with patients discharged from the hospital. Practice staff used terms like "overworked" and "overwhelmed" to describe care managers in 2014. Despite being busy, care managers saw fewer than 5 percent of patients, a level considered too low to affect the "cost curve" by at least one payer.

In Year Three, practices further expanded the types of professionals on their care team. For example, at least one physician organization reported employing a pharmacist and a social worker as care managers, in addition to the nurses who traditionally filled the care manager role. One physician noted that his practice had hired new physicians or physician assistants and

assigned them to provide some of the same-day visits. As in past years, additional services available within practices were being provided by dietitians, diabetes educators, social workers, pharmacists, or psychologists. In addition, some practices hired additional staff for the more administrative activities that care managers would otherwise have to do.

Health information technology. Adoption of EHRs was a major change that was often facilitated by MiPCT. Although some practices had EHRs for a long time (some implemented them as far back as 2001), most practices interviewed acquired them during this project. By Year Two, all of the practices we interviewed were using EHRs. Indeed, in the MAPCP Demonstration provider survey, virtually all practices (94 percent) reported a high level of EHR adoption for basic functions plus more advanced functions, such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines), and generating quality measure data for quality improvement purposes.

The practices generally reported EHRs as being excellent for internal office quality improvement. They can remind providers when certain tests or screenings are due and can be queried to provide lists of patients with certain diseases to check if appropriate care has been given. On the other hand, practices also reported that EHRs can be maddeningly “clunky and counterintuitive” to use, and they were not always designed to generate the data needed for MiPCT. In particular, many EHRs did not integrate care management data easily, and care management software packages are hard to integrate with EHR systems. The adoption of EHRs by many practices necessitated other changes, such as hiring coders and additional training of employees.

Virtually all practices had patient registries, which was a condition of participating in MiPCT; some were free-standing software packages, and others were components of their EHRs. In most cases, the registries were disease-focused, with diabetes and hypertension the leading diagnoses tracked. Most practices reported that the registries served only as a reporting tool, and, in many cases, their EHRs provided the same or better information. As a result, these practices used their EHRs instead of the registry reporting for monitoring preventive services and compliance with evidence-based medicine.

Care managers reported varying access to practice EHRs. According to the MPHI survey of care managers, most care managers were allowed both to retrieve and enter information, but others did not have access to EHRs. Some care managers used the EHR as their main way to communicate with doctors and other practice clinicians, documenting their activities directly into the EHR; others left written reports for the doctors to approve and enter into the EHR themselves.

EHRs often lacked the ability to connect with other IT systems. If a patient used services outside the health system, the primary care practice EHR would not have a record of that service use. Most practices also reported that their EHRs had limited capabilities for data transfer with hospitals (usually laboratory test data), and their EHRs did not receive reports about ER visits or inpatient stays.

During Years Two and Three, an increasing number of practices received ADT information from hospitals, a local health information exchange (HIE), or the Michigan Health

Information Network (MiHIN) through MiPCT's Care Team Connect system (the Web-based platform used to support care managers). Others relied primarily on faxing to exchange information with hospitals. Throughout the demonstration, patient health information from specialists and hospitals was not integrated into their EHRs. Hospitals' participation in sending data to an HIE varied by region, but overall the number of participating hospitals increased substantially during Year Three. Practices using Care Team Connect to find ADT information also received a flag indicating MiPCT-eligibility in addition to the notification. In other cases, practices got the information directly from the hospital, sometimes by e-mail or fax.

Patient awareness of patient-centered medical home. When focus group participants were asked if they were a part of a PCMH, the majority was unaware of the term. Before receiving an explanation of the term "patient-centered medical home," participants demonstrated a general misunderstanding of what a PCMH was. A frequently expressed opinion was that a "medical home is like when somebody has a disability and they cannot take care of themselves, so they ... move into a home that can better assist you." When they heard the description of a PCMH, most participants did not think they were receiving care from a primary care physician's office that was a PCMH. Many believed it would be a good system of care. As one participant put it, "You have my doctor talking with a specialist, and you've got him talking to somebody else. The more people I think that can talk about your problem and put their input into it, the better it will be for me ... I like the idea." A few participants did worry that a PCMH would limit their access to specialists, increase costs to cover extra services, or involve too many people in patient care, which could result in an overly bureaucratic system.

Patient awareness of practice changes. When asked in the fall 2014 about the changes they observed in their primary care practices over the past few years, focus group participants generally characterized the changes as positive for their experience of care. Many changes mentioned involved increasing use of EHRs. For example, participants reported there is "better communication between doctors, doctors' offices, and specialists" and "by the time you get back in the car, it [a prescription refill] is already at the pharmacy." Some participants also reported that the addition of EHRs allows physicians to keep better track of test results. Many participants reported receiving after-visit print-outs with their medical information as a recent change. A few participants also reported that they recently began receiving care plans, saying, "I've noticed that—and this is new maybe within the last year or so—that they're sending home patient plans or patient care plans." Participants in several groups in the Grand Rapids area observed that it was easier to make physician appointments, and they had shorter wait times for the physician during their scheduled appointment time.

Some observed changes were negative for the experience of care. With EHR implementation, some participants felt that interactions with their physicians have become less personal, with the physician looking more at the computer than the patient. Separate from EHR implementation, a few caregivers in one group reported that their physician seems to be busier with more patients than previously, sometimes resulting in the physician spending less time with a patient.

10.2.2 Technical Assistance

MiPCT provided a broad range of technical assistance for practices and physician organizations, including training of care managers, webinars, physician dinners, and annual summits. Participation in some learning activities sponsored either by MiPCT or physician organizations was a requirement for demonstration practices. The extent to which practices participated in the learning opportunities varied. Training sessions on billing, using the All-Payer Patient List, end-of-life care, motivational interviewing, and depression were thought to be valuable by most practices interviewed. For some practices, the time sharing information with other practices, such as in a learning collaborative, was helpful. Others felt the level of discussion at some events was too elementary. Doctors and care managers expressed concern that some of the technical assistance required too much time away from the practice. Perhaps thus, only about 10 percent of practices were involved in the 2013 learning collaboratives.

Given the centrality of care managers to the transformation initiative, a lot of technical assistance was provided to them, both initially when they took their positions and over the course of the demonstration. Care managers had varying opinions on the webinars sponsored by MiPCT or their physician organization, with several care managers singling out training on obesity for praise. Care managers generally said there were far more learning activities available than they had time to attend or use. Making use of their more direct relationship with the practices, physician organizations also provided technical assistance to practices. In addition to helping implement MiPCT at the practice level, physician organizations held webinars for practices, which were generally viewed positively.

MiPCT provided data dashboards compiled by MDC from Medicare, Medicaid, commercial insurers claims data, and later some clinical data. The data dashboards were sent to the physician organizations, who then sent information to the practices. Initially, physician organizations did not always send the information on to the practices, but they did so increasingly as the demonstration progressed.

Data dashboards received a mixed response from physician organizations and practices. The major criticism of the dashboards was that the claims data were often 6 months old or older and they were judged “not helpful” in the management of individual patients. Some practices used patient risk scores to help prioritize patients for care management but found discrepancies between the risk score assigned according to older claims-based data and their current knowledge of the patient. Other practices, however, said that dashboard data were useful as a report card; the data were shared with practice staff to monitor progress.

10.2.3 Payment Supports

Practices commented that the funding from Medicare and other payers under the project made it possible to hire care managers for more of their patients. Practices also said, however, that the different payment systems across payers added complexity and made it difficult for the practices to track payments and allocate them in support of MiPCT. In fact, most practices could not specify where exactly the extra funding was going. Usually these funds were pooled with the general receipts of the practice. Overall, practices that we interviewed either could not determine whether the MiPCT payments were sufficient to offset their costs or argued that they were not. Several practices said they are involved in PCMH activities to improve patient care and not to

make money. Moreover, practices stated that if they lose money, at least the initiatives are good for the patients. Some practices felt that, other than care managers, other MiPCT administrative requirements were relatively uncompensated.

Numerous practices and physician organizations reported that their major goal was just to break even with the payment supports associated with the program. One physician organization staff member commented that there was frustration that they were asked to provide extensive support to practices but did not receive greater payments. Practices reported that certain costs (e.g., new staff and computers) were practice-wide and were not linked to individual patients. As a result, not all of these costs were recoverable because not all payers were making payments on behalf of their members, even though they were benefitting from these practice-wide resources.

Although practices were pleased that MiPCT was *multi-payer*, they were frustrated that it was not *all-payer*. Thus, care managers had to focus only on patients insured by a participating payer; funds were not available for care coordination for patients of nonparticipating payers or uninsured patients. The inability to provide care management to people insured by nonparticipating insurers was a matter of great confusion and concern by practices and care managers.

Although practices received intensive technical assistance to train them on how to submit claims for care management provided to BCBSM and BCN patients, practices were frustrated that these claims were administratively burdensome and often were rejected. Neither Medicare nor Medicaid, which accounted for most of the care management patients, required FFS billing, but the issue loomed large among practices.

Incentive payments were paid to the physician organizations, with the requirement that at least 80 percent of the funds be distributed to practices. The proportion of MiPCT funds retained by physician organizations varied. Some physician organizations stated that they kept the full 20 percent and used it for administrative, data analysis, and training expenses. On the other hand, one physician organization reported that they served only as a pass-through and kept none of the MiPCT incentive payments. Several state officials and physician organizations said that the varying capabilities of physician organizations to provide support were not taken into account when determining how much the physician organizations could retain, and some physician organizations provided more in services to their practices than reflected in their compensation.

10.2.4 Practices' Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of adoption of a particular PCMH activity, one representing a moderate level, and one representing a high level of adoption of the activity. Survey findings presented in *Table 10-7* and *Table 10-8* focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted.

The Overall Practice Transformation Index reported in **Table 10-7** is the percentage of activities adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities that Michigan providers reported engaging in was significantly higher than the average percentage across the eight MAPCP Demonstration states, both overall and within four of the six PCMH domains. The Overall Practice Transformation Index in Michigan was 76 percent, significantly higher than the eight-state MAPCP Demonstration average of 72 percent. In the four domains where Michigan providers scored higher than the eight-state MAPCP Demonstration average, the average percent of PCMH activities adopted at a high level was 79 percent in access to care, 85 percent in care management (without involvement of other providers), 76 percent in patient engagement and self-management, and 79 percent in quality improvement. In the two domains that showed non-significant differences between providers in Michigan and the eight-state MAPCP Demonstration average, Michigan providers reported an average of 69 percent of activities adopted at a high level for care coordination involving other health care providers and 94 percent in health IT. Although comparison data are not available, PCPs participating in the MAPCP Demonstration are likely to be part of practices with a higher level of PCMH activities than nonparticipating practices.

Table 10-7
Michigan: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	in Michigan (N = 431 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	76*	72
Practice Transformation Index by Domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	79*	76
Care management (without involvement of other providers)	85*	78
Care coordination (involving other health care providers)	69	68
Patient engagement and self-management	76*	57
Quality improvement	79*	76
Health IT	94	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 10-8 indicates that the percentage of providers in Michigan who reported a high-level adoption of particular PCMH activities was significantly higher for 11 of the 23 PCMH

questions than the MAPCP Demonstration eight-state average, comparable to the MAPCP Demonstration eight-state average for 10 questions, and lower than comparable states for two questions. Survey questions that Michigan providers answered differently from providers in the eight MAPCP Demonstration states, on average, are noted in *Table 10-8* and discussed in the relevant outcome sections in this chapter.

Table 10-8
Michigan: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Michigan (N = 431 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to Care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	86*	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	83	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care and in-person during some evenings or weekends. The practice actively participates in coordinating ER care and follow-up with patients after visits to the ER.	82*	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent time frame.	77*	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays and is involved as needed.	71	74
Care Management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for pre-visit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	70*	59
Visit focus... Is organized around the specific reason for a patient's visit but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	86	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	98	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	93*	87

(continued)

Table 10-8 (continued)
Michigan: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Michigan (N = 431 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	91*	78
Tracking and follow-up with patients about test results... Is consistently done.	90*	87
Care Coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	74	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	58*	50
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	88	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	54*	64
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. Practice has agreements in place with the hospitals and facilities patients most commonly use. Practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified time frame.	85*	80
Patient Engagement and Self-Management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	67	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	52	51
Involving patients and caregivers in health care decision-making... Is a priority and systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, or teach-back techniques.	73*	67

(continued)

Table 10-8 (continued)
Michigan: Percentage of respondents reporting a high level of adoption of
PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Michigan (N = 431 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Patient self-management support for chronic conditions... Is provided through goal setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	61*	57
Quality Improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	84*	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	82	79
Health IT (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	94	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; Health IT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Briefly, a higher share of Michigan providers reported engaging in the following 11 activities than the share for the total for the eight MAPCP Demonstration states:

- offering after-hours access to practice staff by phone and through evening or weekend office hours and following up after ER visits (82% in contrast to 69%)
- providing alternate types of contact (e.g., e-mail, Web, text messages) (77% in contrast to 71%)
- routinely using registries (70% in contrast to 59%)
- identifying and coordinating clinical management for complex patients (93% in contrast to 87%)

- routinely providing preventive screenings (91% in contrast to 78%)
- consistently tracking test results and following up with patients (90% in contrast to 87%)
- having referral protocols and agreements with other providers (58% in contrast to 50%)
- following up with patients seen in the ER or hospital (85% in contrast to 80%)
- incorporating patients' values and preferences into care planning (73% in contrast to 67%)
- consistently working with patients on chronic condition self-management (61% in contrast to 57%)
- applying systematic approaches to quality improvement (84% in contrast to 81%)

On the other hand, a lower share of Michigan providers reported engaging in the following two activities than the total for the eight MAPCP Demonstration states: (1) having appointments systems with the capacity for same-day, urgent, and walk-in visits; and (2) providing comprehensive referrals to behavioral health providers.

These results are contextualized and discussed in greater detail in subsequent sections of this chapter.

10.2.5 Discussion of Practice Transformation

Before MiPCT, all participating practices already had some form of PCMH certification (mostly from BCBSM) and thus had begun the PCMH transformation before the demonstration began. In addition to requirements related to providing enhanced access to medical decision makers 24 hours a day, 7 days a week, maintaining an appointment system that would allow 30 percent of the daily appointments to be available for the same day, and operating a medical registry, the most important change was the hiring of care managers, either at the practice or physician organization level. The hiring of care managers was the centerpiece of efforts to achieve short-term cost savings, through timely follow-up with patients after hospital or ER discharge, patient education, care coordination, and medication reconciliation.

Hiring, training, and embedding more than 400 care managers into the MiPCT practices was a major task for MiPCT. This took time to implement, and the concept of care management evolved over time. By Year Three, care managers were generally well integrated into the practice routine and had the resources they needed (e.g., a desk, a telephone, access to a computer, and good communications with physicians). Both physicians and care managers reported good working relationships. Quantitative data from the provider survey showed that MiPCT primary care practices reported advanced implementation of PCMH features in most domains, even compared with other states within the MAPCP Demonstration. Michigan practices were especially high within domains that could benefit from having integrated care managers, such as care management (without involvement of other providers) (e.g., medication review and follow up with test results), quality improvement, and use of health IT to support care management.

Practices were not as advanced in other domains related to care management, such as formalizing relationships with commonly referred-to practices, providing services to people with behavioral health needs, and assessing patient and family values and preferences.

Four major issues complicated the implementation of care management. First, because the demonstration was multi-payer rather than all-payer, a great deal of time and energy was spent by practices on determining which patients were and were not eligible for care management services. Second, although MiPCT provided risk scores on individual patients through the use of claims data, many practices felt that the data were too old to be useful and not necessarily consistent with their real-time knowledge of the patients. Thus, targeting patients for care management varied across practices. Third, although by Year Three care managers reported themselves to be busy, they were seeing a small number of patients, perhaps not enough to affect expenditures and utilization. Unlike in some other states, this was framed primarily as low productivity on the part of care managers rather than an inadequate number of staff. In addition, early in the demonstration, some care managers reported spending time on data entry and administrative tasks to meet the expectations of MiPCT (e.g., for quality measure reporting from a registry, if separate from an EHR). Fourth, although care managers focused on transitions of care between hospitals and primary care, their attention was not explicitly on coordination with specialty care, even though specialists control a great deal of health care utilization and expenditures.

10.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 10.3.1*); impacts on utilization of services and clinical quality (*Section 10.3.2*); and a synthesis of these findings (*Section 10.3.3*).

10.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

Initiatives to improve quality of care, patient safety, and health outcomes at the practice level included using performance measures, implementing patient registries, and conducting medication reconciliation. Quality metrics were included in the dashboards provided by MDC and were used in allocating the incentive payments. Care managers and physicians noted that someone in the practice reviewed gaps in care during patient visits, especially for patients with chronic disease, based on EHR data or data received from payers. Tying the incentive payments to the quality metrics focused practice attention on those metrics.

Although the initial incentive metrics had many process measures, the final performance incentive metrics related to utilization or process measures, such as depression screening, community referrals, or self-management support. Others reflected prevention efforts to reduce tobacco use, increase cancer screening, increase well-child visits, and maintain good blood pressure for patients with diabetes, cardiovascular disease, and hypertension. MiPCT offered a learning collaborative focused on diabetes for physician organizations whose MiPCT practices' clinical quality metrics for diabetes were significantly worse relative to those of other physician organizations. Practices generally expressed relief that the metrics were similar across payers beyond MiPCT and did not increase the number of quality measures on which they had to focus. Some physicians, physician organizations, and payers noted that the quality measures did not

align especially well with care managers' work with patients with multiple chronic diseases and disabilities.

By the end of Year One, all participating practices were required to have an electronic patient registry that tracked process of care and outcome data on certain populations of patients and was capable of submitting clinical data to MDC. The electronic registry was intended to identify gaps in care, such as a diabetic patient who has missed an HbA1c test or a child who has missed a recommended vaccination. In addition, these capabilities were intended to be used to monitor use of preventive services and the management of chronic illnesses according to evidence-based guidelines, as well as to calculate quality measures beginning in Year Two. Some practices reported using their registries or EHRs to track patient preventive care at the time of appointments, but few reported using these methods systematically to identify and contact patients outside the office.

An important patient safety initiative of MiPCT was medication reconciliation, which was commonly performed by care managers working with patients in transition from a hospital or ER. In addition, some care managers did medication reconciliation every time a high-risk person had a primary care visit. One care manager encouraged her patients to bring in all their medications at each visit for them to review together. Care managers reported that medication conflicts (e.g., two drugs prescribed in the same class, drug-drug interactions) after hospital discharge were common. In the CAHPS PCMH survey, 85 percent of patients reported that someone in the provider's office talked at each visit about all the prescription drugs they were taking. In several groups—mostly of caregivers, but also others with complex needs—participants noted that primary care physicians often tracked patient medication lists in an EHR, reviewed the medication list with them at appointments or on a printed patient visit summary, and asked the patient or caregiver to bring all bottles of prescription medicine for review during an appointment.

As part of their work, some care managers reported following care guidelines for specific diseases, most commonly diabetes. A major part of their work, especially initially, was instructing patients on self-management with the aim of improving compliance with medications and diet. In response to the CAHPS PCMH survey, 96 percent of patients reported that they received easy-to-understand instructions from their provider about taking care of health problems or concerns.

10.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

MiPCT was expected to improve quality of care and health outcomes. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between MiPCT and two CGs: PCMHs and non-PCMHs.

- **Table 10-9** reports on changes in six process of care measures among Medicare beneficiaries with diabetes and on one process of care measure for patients with ischemic vascular disease (IVD).
- **Table 10-10** reports on changes in six process of care measures among adult Medicaid beneficiaries with diabetes. Additional process of care measures examined specifically for the adult Medicaid population include breast cancer screening,

cervical cancer screening, and appropriate use of antidepressant medications. A measure of appropriate use of asthma medications is also reported for both children and adults enrolled in Medicaid.

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with the MAPCP Demonstration in the likelihood of receiving the service in Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared with the CG. MAPCP Demonstration beneficiaries are expected to have positive values for all indicators, except the “none” indicator in diabetes care.

In addition to examining processes of care, which are largely based on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to MiPCT practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 10-11** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with MiPCT in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If MiPCT was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

We describe statistically significant *overall* findings for each results table. We also note when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 10.3.3**.

Table 10-9
Michigan: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 48,143)	0.25	[-1.83, 2.34]	1.47*	[0.40, 2.54]
Year Two (N = 32,774)	-0.12	[-2.33, 2.09]	0.89	[-0.43, 2.21]
Year Three (N = 19,453)	-1.70	[-3.98, 0.58]	-1.17	[-3.09, 0.74]
Overall (N = 51,818)	-0.25	[-2.27, 1.78]	0.77	[-0.22, 1.75]
Retinal eye examination				
Year One (N = 48,143)	0.25	[-1.49, 1.99]	-1.83	[-4.12, 0.46]
Year Two (N = 32,774)	0.29	[-2.42, 3.00]	1.99	[-1.13, 5.11]
Year Three (N = 19,453)	-2.14	[-4.61, 0.33]	-0.25	[-4.76, 4.27]
Overall (N = 51,818)	-0.20	[-1.45, 1.05]	-0.28	[-2.89, 2.34]
LDL-C screening				
Year One (N = 48,143)	-0.23	[-2.09, 1.63]	-2.03	[-5.50, 1.44]
Year Two (N = 32,774)	1.05	[-0.80, 2.90]	-2.22	[-6.47, 2.02]
Year Three (N = 19,453)	0.08	[-3.04, 3.19]	-4.07*	[-8.10, -0.03]
Overall (N = 51,818)	0.25	[-1.58, 2.07]	-2.49	[-6.18, 1.21]
Medical attention for nephropathy				
Year One (N = 48,143)	-1.06	[-3.38, 1.25]	0.24	[-1.71, 2.20]
Year Two (N = 32,774)	1.75	[-3.19, 6.70]	-1.53	[-4.92, 1.86]
Year Three (N = 19,453)	-1.17	[-5.28, 2.94]	-1.73	[-6.34, 2.87]
Overall (N = 51,818)	-0.16	[-3.31, 2.98]	-0.72	[-3.38, 1.94]
Received all 4 diabetes tests				
Year One (N = 48,143)	-1.04	[-3.35, 1.27]	-1.49	[-4.51, 1.53]
Year Two (N = 32,774)	2.96	[-1.82, 7.75]	-1.03	[-5.47, 3.42]
Year Three (N = 19,453)	-2.46	[-6.68, 1.75]	-4.16	[-9.48, 1.17]
Overall (N = 51,818)	-0.01	[-3.13, 3.11]	-1.86	[-5.28, 1.56]
Received none of the 4 diabetes tests				
Year One (N = 48,143)	-0.06	[-0.75, 0.63]	-0.01	[-0.41, 0.38]
Year Two (N = 32,774)	0.39	[-0.42, 1.19]	-0.40	[-1.08, 0.28]
Year Three (N = 19,453)	0.76*	[0.12, 1.39]	0.98*	[0.35, 1.61]
Overall (N = 51,818)	0.24	[-0.23, 0.72]	0.05	[-0.36, 0.47]
Total lipid panel				
Year One (N = 74,959)	-1.51	[-3.45, 0.44]	-2.46*	[-4.32, -0.60]
Year Two (N = 55,360)	0.59	[-3.01, 4.18]	-1.92	[-4.80, 0.96]
Year Three (N = 35,955)	-3.50	[-8.28, 1.28]	-5.69*	[-8.95, -2.43]
Overall (N = 89,813)	-1.24	[-4.07, 1.59]	-2.98*	[-5.10, -0.86]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MiPCT = Michigan Primary Care Transformation Project; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that MiPCT decreased the likelihood of total lipid panels, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 10-9** shows the following:

- The *overall* likelihood of receiving a **total lipid panel** decreased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, low-density lipoprotein cholesterol (LDL-C) screening, retinal eye examinations, receipt of all four diabetes tests, receipt of none of the diabetes tests, and medical attention for nephropathy.

Table 10-10
Michigan: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	11.66*	[0.69, 22.63]	3.59	[-4.14, 11.31]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	19.43*	[6.25, 32.60]	11.56*	[1.47, 21.65]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	13.90*	[4.04, 23.75]	7.79	[-3.21, 18.80]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	14.55*	[3.26, 25.85]	6.98	[-1.82, 15.77]
Retinal eye examination										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	-4.41*	[-8.50, -0.32]	-2.06	[-6.92, 2.79]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	-1.46	[-4.98, 2.06]	-3.13	[-8.04, 1.77]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	-0.52	[-3.91, 2.86]	-3.82	[-9.94, 2.31]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	-2.64*	[-4.44, -0.84]	-2.78	[-6.32, 0.76]
LDL-C screening										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	10.84*	[2.86, 18.81]	3.44	[-3.04, 9.92]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	13.57*	[3.73, 23.41]	7.65*	[0.67, 14.64]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	6.15	[-0.83, 13.13]	7.59*	[1.82, 13.37]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	10.65*	[2.53, 18.77]	5.66	[-0.45, 11.77]
Medical attention for nephropathy										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	7.82*	[0.69, 14.95]	7.27*	[2.16, 12.38]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	7.66*	[0.21, 15.12]	6.60*	[1.92, 11.29]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	3.80	[-1.61, 9.21]	3.87	[-0.96, 8.70]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	6.88*	[0.35, 13.42]	6.32*	[1.79, 10.84]
Received all 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	4.65*	[0.34, 8.97]	-0.22	[-3.15, 2.72]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	6.29*	[0.38, 12.19]	1.84	[-0.99, 4.67]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	4.11*	[0.46, 7.75]	1.56	[-0.29, 3.41]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	5.04*	[0.51, 9.56]	0.81	[-1.51, 3.14]

(continued)

Table 10-10 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Received none of the 4 diabetes tests										
Year One	N/A	N/A	N/A	N/A	N/A	7,101	-3.69*	[-7.13, -0.25]	-3.05	[-6.99, 0.89]
Year Two	N/A	N/A	N/A	N/A	N/A	4,663	-9.94*	[-17.19, -2.69]	-4.47	[-11.28, 2.33]
Year Three	N/A	N/A	N/A	N/A	N/A	3,324	-6.14	[-12.99, 0.71]	-3.44	[-10.04, 3.15]
Overall	N/A	N/A	N/A	N/A	N/A	8,400	-6.16*	[-11.25, -1.07]	-3.58	[-8.62, 1.47]
Breast cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	15,363	-2.06	[-5.22, 1.10]	1.45	[-1.49, 4.38]
Year Two	N/A	N/A	N/A	N/A	N/A	10,005	-1.22	[-2.73, 0.29]	0.07	[-2.56, 2.69]
Year Three	N/A	N/A	N/A	N/A	N/A	8,412	0.05	[-1.17, 1.26]	-1.31	[-2.93, 0.31]
Overall	N/A	N/A	N/A	N/A	N/A	17,256	-1.29	[-3.03, 0.46]	0.35	[-1.76, 2.46]
Cervical cancer screening										
Year One	N/A	N/A	N/A	N/A	N/A	48,572	2.00	[-0.60, 4.61]	-0.39	[-1.53, 0.75]
Year Two	N/A	N/A	N/A	N/A	N/A	28,092	1.78	[-1.50, 5.07]	-0.94	[-2.28, 0.40]
Year Three	N/A	N/A	N/A	N/A	N/A	22,419	-0.44	[-1.36, 0.48]	-1.51*	[-2.52, -0.50]
Overall	N/A	N/A	N/A	N/A	N/A	54,349	1.39	[-0.90, 3.68]	-0.80	[-1.65, 0.05]
Antidepressant medication management: 12 weeks										
Year One	N/A	N/A	N/A	N/A	N/A	4,867	-1.49	[-5.28, 2.29]	5.16*	[0.59, 9.73]
Year Two	N/A	N/A	N/A	N/A	N/A	2,332	2.67	[-2.83, 8.18]	-3.04	[-11.49, 5.42]
Year Three	N/A	N/A	N/A	N/A	N/A	1,146	0.83	[-6.18, 7.83]	-1.94	[-8.42, 4.55]
Overall	N/A	N/A	N/A	N/A	N/A	7,093	-0.01	[-2.56, 2.54]	1.90	[-1.42, 5.21]

(continued)

Table 10-10 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
process of care indicators among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Antidepressant medication management: 6 months										
Year One	N/A	N/A	N/A	N/A	N/A	4,867	-1.20	[-6.15, 3.74]	-0.98	[-5.85, 3.89]
Year Two	N/A	N/A	N/A	N/A	N/A	2,332	0.35	[-6.80, 7.49]	-3.11	[-8.29, 2.08]
Year Three	N/A	N/A	N/A	N/A	N/A	1,146	-0.27	[-4.92, 4.38]	-7.08*	[-12.01, -2.15]
Overall	N/A	N/A	N/A	N/A	N/A	7,093	-0.64	[-5.59, 4.31]	-2.41	[-5.88, 1.06]
Appropriate use of asthma medications										
Year One	4,798	-1.90	[-6.97, 3.16]	-1.22	[-4.45, 2.02]	2,300	-1.16	[-4.81, 2.49]	-0.31	[-4.63, 4.02]
Year Two	3,645	0.82	[-7.70, 9.34]	-3.86	[-8.49, 0.76]	1,459	0.84	[-3.34, 5.03]	-2.81	[-6.11, 0.49]
Year Three	2,318	1.11	[-6.96, 9.17]	-4.38	[-10.77, 2.01]	874	1.03	[-6.71, 8.77]	-5.32	[-11.42, 0.78]
Overall	7,606	-0.33	[-5.79, 5.13]	-2.80	[-6.19, 0.60]	3,419	-0.12	[-3.71, 3.48]	-2.04	[-5.55, 1.47]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique MiPCT Medicaid participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT Practices = Michigan Primary Care Transformation; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries, we found some evidence that MiPCT affected process of care measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Among Medicaid children, we find no evidence of an impact on the appropriate use of asthma medications. Specifically, **Table 10-10** shows the following:

- The *overall* likelihood of **medical attention for nephropathy** increased among adult Medicaid MiPCT beneficiaries compared with adult Medicaid beneficiaries assigned to either PCMH or non-PCMH comparison practices.
- The *overall* likelihood of **HbA1c testing, LDL-C screening, and receiving all four diabetes tests** increased among adult Medicaid MiPCT beneficiaries compared with adult Medicaid beneficiaries assigned to PCMH comparison practices only.
- The *overall* likelihood of **receiving none of the four diabetes tests** decreased among adult Medicaid MiPCT beneficiaries compared with adult Medicaid beneficiaries assigned to PCMH comparison practices only.
- The *overall* likelihood of a **retinal eye examination** decreased among adult Medicaid MiPCT beneficiaries compared with adult Medicaid beneficiaries assigned to PCMH comparison practices only.
- Although the *overall* estimate was not statistically significant, positive estimates in Years Two and Three suggested a potential trend toward an increased likelihood of **LDL-C screening** among adult Medicaid MiPCT beneficiaries compared with adult Medicaid beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for breast cancer screening, cervical cancer screening, and the appropriate use of medications.

Table 10-11
Michigan: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 226,858)	-0.71	[-1.70, 0.28]	-0.35	[-1.04, 0.33]
Year Two (N = 228,779)	-0.59	[-1.86, 0.68]	-0.64	[-1.65, 0.37]
Year Three (N = 222,462)	-0.46	[-1.50, 0.59]	0.77	[-0.41, 1.94]
Overall (N = 299,907)	-0.59	[-1.61, 0.44]	-0.08	[-0.92, 0.75]
PQI admissions—overall ²				
Year One (N = 226,858)	-0.90	[-1.97, 0.18]	0.14	[-0.76, 1.04]
Year Two (N = 228,779)	-0.65	[-1.81, 0.50]	-0.34	[-1.44, 0.76]
Year Three (N = 222,462)	0.02	[-1.19, 1.23]	-0.47	[-1.81, 0.86]
Overall (N = 299,907)	-0.51	[-1.58, 0.55]	-0.22	[-1.19, 0.75]
PQI admissions—acute ³				
Year One (N = 226,858)	-0.70	[-1.55, 0.16]	-0.25	[-0.67, 0.16]
Year Two (N = 228,779)	-0.65	[-1.69, 0.40]	-0.17	[-0.61, 0.28]
Year Three (N = 222,462)	-0.35	[-1.16, 0.46]	-0.78*	[-1.55, 0.00]
Overall (N = 299,907)	-0.57	[-1.43, 0.30]	-0.40	[-0.85, 0.05]
PQI admissions—chronic ⁴				
Year One (N = 226,858)	-0.26	[-0.95, 0.44]	0.33	[-0.34, 0.99]
Year Two (N = 228,779)	0.02	[-0.62, 0.65]	-0.14	[-0.91, 0.63]
Year Three (N = 222,462)	0.50	[-0.22, 1.23]	0.36	[-0.42, 1.14]
Overall (N = 299,907)	0.09	[-0.51, 0.68]	0.18	[-0.46, 0.82]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare MiPCT beneficiaries, there were no statistically significant *overall* differences observed in the rates of avoidable catastrophic events or PQI inpatient admissions (overall, acute, or chronic).

10.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

Improvement in quality of care was a key component of MiPCT's overall strategy, but they did not achieve many of the desired outcomes, such as reduction in preventable hospitalizations among Medicare beneficiaries. The analysis of Medicaid claims data found no improvement for breast cancer or cervical cancer screening. Moreover, for both Medicaid-covered children and adults, MiPCT did not improve appropriate use of asthma medications.

One possible reason is that although MDC provided practices with information on their performance on quality metrics through regular data dashboards, and that information was used to provide financial incentive payments to practices, some practices felt that the quality metrics were not a good reflection of the care managers' work with patients with multiple chronic conditions. In addition, although MiPCT required practices to have an electronic patient registry to help make sure that people with chronic illnesses received the recommended services, some practices did not use it consistently to contact patients outside of the office visits to receive preventive care. Although we would expect more immediate improvements in the annual process of care measures like screening, there may be a need for a more than 3-year evaluation period to demonstrate an association between participation in MiPCT and significant overall positive changes in patient outcomes, as proxied by preventable hospitalizations for chronic conditions, for example.

One particularly unexpected result were the mixed outcomes on diabetes. Although MiPCT did not have a measurable positive impact on diabetes care for Medicare beneficiaries, the demonstration appears to be associated with more significant positive changes for the Medicaid population. Care managers reported that they paid significant attention to people with diabetes, especially in the early part of the demonstration, and later a MiPCT-sponsored learning collaborative for physician organizations that performed poorly on diabetes measures. Yet, the Medicare claims analysis suggests little if any improvement over time in diabetes care. More positively, for Medicaid-covered adults, MiPCT improved most of the diabetes measures, including HbA1c testing, LDL-C screening, and medical attention for nephropathy, and receiving none of the four diabetes tests, relative to one or both of the CGs.

10.4 Access to Care and Coordination of Care

This section describes the changes practices made aimed at improving access to care and the coordination of care (*Section 10.4.1*), impacts on access to care and coordination of care (*Section 10.4.2*), and a synthesis of these findings (*Section 10.4.3*).

10.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

MiPCT instituted several specific requirements to improve access to care and coordination of care. First, to improve access, MiPCT participating practices were required to

have 30 percent open-access appointments (i.e., appointments available for same-day appointments); some practices reported that they already had 30 percent open access before the project began. The CAHPS PCMH survey of Michigan MiPCT Medicare patients found good access to services during routine business hours. Almost 9 out of 10 (89%) patients stated that when they phoned the provider's office to get an appointment for care they needed right away, they were always/usually able to get an appointment as soon as needed. Only 41 percent said they were able to obtain a same-day appointment from their primary care practice when they needed care right away.

Participants across all focus groups reported that they could easily schedule appointments for routine and urgent care. For urgent care appointments, patients could get an appointment with a provider in the practice relatively quickly but may have needed to wait longer for an appointment with their usual physician. However, the focus groups of Medicaid patients reported more difficulty getting appointments when they needed care and thus greater use of ER services. They also reported greater difficulty getting transportation to their physician's office as compared with getting to an ER. One caregiver, who arranges transportation through an organization, reported that transportation was not always available at the time of the doctor's appointment. "If the child is sick, they'll say, 'Can you bring the child in at such and such?' I'm like, 'Well, I don't have any transportation.' 'Well, you can't ride the bus?' I said, 'No, because I have a disability. I can't stand for a long period of time.'" She said because of these transportation issues "You have no other choice but to take them to the ER or the Med Center." Another caregiver's loved one used a transportation service to go to physician appointments, and they had recently gone to the ER instead because "with our transportation service, you have to call and schedule your ride and everything, so she [the patient] probably just thought it was more convenient to go to the ER."

Second, MiPCT also required that practices provide 24-hour-a day, 7-day-a-week access to a clinical decision maker (usually by phone). The latter requirement had to be met by the second year of the state initiative. MiPCT also encouraged after-hours access and offered an incentive payment to practices providing at least 12 hours per week of access outside of regular 9–5 office hours by the end of the first year. Although the CAHPS PCMH survey of MiPCT Medicare patients found that 81 percent of respondents reported that their primary care practice gave them information about what to do if they needed care during evenings, weekends, or holidays, less than half (47%) of patients said that they were always/usually able to get needed care during evenings, weekends, or holidays, and 41 percent said that they never got needed care during those time periods. Sixty-three percent responded that they usually or always got answers to medical questions about which they called their practice after office hours.

Third, all practices, physician organizations, and care managers identified coordination of care as a major goal. Care managers, a key feature of MiPCT, provided self-management education, but they also coordinated care among health care settings, made follow-up calls, and reconciled medications. There was variation among practices in how much emphasis was placed on care coordination for patients not admitted to a hospital or using the ER. A growing area of focus in 2013 and 2014 was providing access to other community resources for patients with complex psychosocial needs in addition to their chronic medical conditions. Many care managers commented that providing this link was one of their most important roles. Patients, they said,

benefitted from services such as transportation to appointments, Meals on Wheels, support groups, and mental health services.

Coordination with hospitals. Experiences with care managers varied among focus group participants, with reports of having a care manager coming mostly from those who might be expected to have the most complex care: individuals with both Medicare and Medicaid coverage, Medicare-only patients with complex conditions (high-risk), and parents of children with disabilities and caregivers. The most common interactions participants had with a care manager were following a hospital discharge. For example, one participant reported having a care manager whose main goal was to keep the participant from returning to the hospital by working to prevent a return to previous habits that had led to the hospitalization. Others reported receiving calls from a nurse at their primary care physician's office within one or two days of hospital discharge to follow up on their condition. Some participants reported that their care manager addressed broader concerns than just a recent hospitalization. One participant who had a care manager reported that he called his care manager if he had questions about anything, such as understanding his health records, and that the care manager communicated often with the physician.

Part of the role that care managers played in providing complex care management was to coordinate transitions in care quickly and efficiently, with the intention of improving outcomes and decreasing costs. An increasing number of practices reported that they relied on EHRs for notification of hospital admission or discharge, although some physician organizations, practices, and care managers reported that they relied on faxes. Those practices relying on EHRs received timely notification when patients were admitted or discharged from a hospital affiliated with the same health care system as the practice, but not when patients were admitted to or discharged from hospitals affiliated with different health care systems.

The 2013 partnership between MiPCT and MiHIN, the statewide HIE, created a platform for care managers to receive electronic ADT alerts for patients in their practices. MiPCT also worked with the health care systems to provide protected access to clinical record information when a care manager received an alert. The intent was to broaden the pool of hospitals from which practices received near real-time notifications of hospitalizations, discharges, and ER visits. MiPCT also worked with participating practices to help them incorporate this new information into the care management workflow within each office, so that it would be acted on promptly and consistently.

With the increased availability of discharge information from hospitals—either through ADT notifications through local HIEs, such as Great Lakes Connect, or through access to individual hospital EHRs or discharge lists—many care managers noted success in their efforts to contact patients within 48 hours of hospital discharge and schedule a follow-up visit at the primary care practice. As one physician said, “Care managers are very active in patient communication upon discharge to coordinate rehab, to coordinate communication, to be sure of proper medication reconciliation and hospital medication instructions. They make sure those medications changes are appropriate from their perspective. They deal with any other outstanding issues from patients and families, as well as setting up appropriate appointments for follow-up care.”

Focus group participants' experience of coordination between their primary care physician's office and a hospital ranged from little or no communication to smooth coordination. Often, the extent to which coordination occurred depended on whether the hospital and primary care physician belonged to the same health care system. For example, some focus group participants reported that it was difficult to transfer records or coordinate between physician offices and hospitals that belonged to different health care systems. Several of these participants reported that they needed to take specific actions to have their records transferred between a hospital in one health care system and a primary care physician in another system, such as making a specific request and signing release forms or visiting the hospital's medical records office themselves to pick up paper copies of their records to bring to their primary care physician. Several participants reported that they did not receive any follow-up from their physician's office after care from a hospital; instead, they had to pursue follow-up care with their primary care physician themselves. These participants concluded that this was because their primary care physician did not belong to the same health care system as the hospital.

Among focus group participants whose primary care physician and hospital belonged to the same health care system, some reported that they received a visit from their physician while they were still in the hospital, or they received a call from a nurse in their primary care physician's office to check on their status following a hospitalization or ER visit. In addition, they noted that all records from their primary care physicians were available in the hospital's EHR and vice versa.

Coordination with specialists. The majority of focus group participants reported they went through their primary care physician to receive a specialist referral and then scheduled their own appointment with the specialist. Some participants' primary care physicians scheduled appointments with specialists on their behalf. When scheduling their own appointment with the specialist, the majority of participants reported long wait times for their first specialist appointment, some as long as 3 to 6 months, except in urgent situations. Focus group participants reported mostly positive experiences with regard to transferring records between their primary care physician and specialist, including test results and prescription lists. Some participants noted there had been improvement since the use of EHRs, for example: "And then if they do send me for a test, it's on the computer. They can pull it right on up."

Others in the focus groups noted that their physicians were proactive in asking about other physicians who should receive records such as test results. In most focus groups, most participants perceived that their physicians were sharing information about their care with each other, and, in the Grand Rapids area, this was true even between different health care systems. In the Detroit area, several participants reported that their records did not transfer between their specialists and primary care physicians. For these participants, a common contributing factor was that the specialist belonged to a different health care system than the primary care physician. In one Detroit focus group, several participants reported having to pay for copies of their medical records from a large health care system, so they then could bring the records to their specialist.

Across several focus groups, participants reported that their primary care physicians were not aware of the care they received from mental health care providers, such as a therapists and psychiatrists, and that those mental health specialists did not reach out to share any information with their primary care physicians.

ER use. ER use was mixed among focus group participants, ranging from frequent to not at all. In one focus group, half of participants reported using the ER because of difficulty scheduling appointments with their primary care physician at the local community health center. In one case, the front desk office staff's attitude was another reason to seek care at an ER: "Like if I have a back spasm, I'm going to go to the hospital over calling [doctor's office] to wait for an appointment. They're just so—I feel like they're snooty, so that made me not want to come there. I'm like, 'You know what? I'll go to the ER.'" Some participants in the Grand Rapids group of Medicare and Medicaid-covered participants reported that their physicians have spoken with them about reducing their use of the ER, but that was not common across all groups.

10.4.2 Impacts on Access to Care and Coordination of Care

MiPCT was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between MiPCT and two CGs: PCMHs and non-PCMHs.

- **Table 10-12** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care (COC) Index.
- **Table 10-13** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

MiPCT beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under MiPCT. These measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG.

The follow-up visit rate was analyzed only for Medicare beneficiaries, and the unplanned readmissions within 30 days after discharge was analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not children. Further, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events

associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from 0 to 1. MiPCT beneficiaries were expected to have higher values on the COC Index. Because of limitations in the Medicaid claims data, the COC measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC Index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we only present results for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with MiPCT in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in Year One, Year Two, Year Three, or all years. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who are adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with MiPCT in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who are children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 10.4.3**.

Table 10-12
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 226,858)	49.77*	[9.83, 89.72]	11.68	[-20.15, 43.50]
Year Two (N = 228,779)	18.40	[-17.25, 54.04]	-33.82	[-74.15, 6.50]
Year Three (N = 222,462)	-41.87*	[-81.10, -2.64]	-76.40*	[-137.07, -15.72]
Overall (N = 299,907)	8.95	[-25.56, 43.46]	-32.75	[-72.76, 7.26]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 226,858)	2.43	[-27.64, 32.50]	-9.31	[-39.99, 21.37]
Year Two (N = 228,779)	-7.83	[-47.70, 32.04]	-24.73	[-71.01, 21.55]
Year Three (N = 222,462)	-31.42	[-75.52, 12.68]	-64.79	[-142.76, 13.18]
Overall (N = 299,907)	-12.20	[-49.63, 25.23]	-32.82	[-82.70, 17.07]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 226,858)	6.00	[-2.00, 13.99]	8.22	[-0.23, 16.67]
Year Two (N = 228,779)	9.06	[-0.79, 18.91]	12.89*	[3.17, 22.60]
Year Three (N = 222,462)	4.28	[-4.67, 13.22]	8.59	[-2.72, 19.89]
Overall (N = 299,907)	6.46	[-2.04, 14.97]	9.92*	[0.55, 19.29]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 211,440)				
1st quintile	0.22	[-1.20, 1.65]	0.21	[-0.81, 1.23]
5th quintile	-0.22	[-1.62, 1.19]	-0.21	[-1.20, 0.79]
Year Two (N = 152,966)				
1st quintile	-0.47	[-2.02, 1.09]	0.52	[-1.74, 2.77]
5th quintile	0.41	[-0.93, 1.75]	-0.47	[-2.55, 1.61]
Year Three (N = 108,616)				
1st quintile	0.01	[-1.85, 1.86]	0.82	[-2.49, 4.13]
5th quintile	-0.01	[-1.61, 1.59]	-0.73	[-3.76, 2.30]
Overall (N = 235,776)				
1st quintile	-0.05	[-1.48, 1.37]	0.45	[-1.30, 2.20]
5th quintile	0.03	[-1.26, 1.33]	-0.41	[-2.03, 1.21]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 32,023)	30.09*	[7.91, 52.26]	22.92	[-1.88, 47.72]
Year Two (N = 31,041)	38.99*	[15.21, 62.78]	26.83	[-4.22, 57.87]
Year Three (N = 22,767)	51.75*	[17.19, 86.30]	-21.92	[-59.72, 15.88]
Overall (N = 69,145)	38.89*	[18.25, 59.52]	12.85	[-12.88, 38.59]

(continued)

Table 10-12 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 38,206)	-40.63*	[-64.15, -17.12]	-18.76*	[-33.14, -4.38]
Year Two (N = 37,299)	-13.40	[-36.04, 9.25]	0.63	[-15.17, 16.44]
Year Three (N = 27,982)	-12.90	[-31.70, 5.89]	-10.96	[-37.15, 15.23]
Overall (N = 80,982)	-23.49*	[-43.21, -3.78]	-9.67	[-24.99, 5.65]
COC Index (higher quintile = better continuity of care)				
Year One (N = 246,108)				
1st quintile	0.17	[-1.24, 1.58]	-1.40*	[-2.65, -0.16]
5th quintile	-0.21	[-1.90, 1.49]	1.57*	[0.24, 2.89]
Year Two (N = 180,458)				
1st quintile	-0.83	[-2.50, 0.83]	-0.78	[-2.22, 0.65]
5th quintile	0.98	[-0.92, 2.88]	0.92	[-0.73, 2.57]
Year Three (N = 127,848)				
1st quintile	-2.52*	[-5.00, -0.04]	-0.74	[-3.70, 2.22]
5th quintile	2.52*	[0.24, 4.79]	0.79	[-2.29, 3.88]

(continued)

Table 10-12 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care) (continued)				
Overall (N = 264,763)				
1st quintile	-0.78	[-2.27, 0.71]	-1.05	[-2.39, 0.29]
5th quintile	0.81	[-0.83, 2.44]	1.18	[-0.27, 2.63]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found that MiPCT impacted several of the access to care and care coordination measures, although there were inconsistencies in the statistical significant across CGs. Specifically, **Table 10-12** shows the following:

- The *overall* rate of **surgical specialist visits** increased among MiPCT Medicare beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- The *overall* rate of **follow-up visits within 14 days after discharge** increased among MiPCT Medicare beneficiaries compared with beneficiaries assigned to PCMH practices.

- The *overall* rate of **30-day unplanned readmissions** decreased among MiPCT Medicare beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for the measures of primary care and medical specialist visits, primary care visits as a percentage of total visits, and continuity of care.

Table 10-13
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits										
Year One	195,234	-1.35*	[-2.59, -0.11]	-3.00*	[-4.80, -1.21]	63,889	-7.11*	[-9.05, -5.16]	-4.92*	[-7.19, -2.66]
Year Two	214,132	0.10	[-1.24, 1.44]	-1.74	[-3.86, 0.39]	73,026	0.58	[-1.68, 2.84]	1.99	[-0.69, 4.66]
Year Three	190,763	-0.93	[-2.56, 0.70]	-2.03	[-4.51, 0.44]	114,440	-3.65*	[-6.64, -0.65]	-1.20	[-3.56, 1.17]
Overall	300,041	-0.69	[-1.85, 0.47]	-2.26*	[-4.27, -0.25]	156,836	-3.28*	[-5.45, -1.10]	-1.24	[-3.46, 0.98]
Medical specialist visits										
Year One	195,234	1.59*	[0.17, 3.01]	1.36	[-0.39, 3.10]	63,889	0.34	[-0.63, 1.30]	-0.27	[-1.32, 0.77]
Year Two	214,132	1.13	[-0.11, 2.37]	1.07	[-0.66, 2.79]	73,026	0.85	[-0.31, 2.01]	0.52	[-0.69, 1.73]
Year Three	190,763	1.00	[-0.17, 2.17]	0.98	[-0.59, 2.54]	114,440	0.76	[-0.22, 1.73]	-0.10	[-1.06, 0.86]
Overall	300,041	1.25*	[0.03, 2.48]	1.14	[-0.49, 2.78]	156,836	0.67	[-0.25, 1.58]	0.05	[-0.85, 0.96]
Surgical specialist visits										
Year One	195,234	-0.17	[-0.37, 0.03]	-0.08	[-0.18, 0.02]	63,889	-0.78*	[-1.38, -0.18]	-0.01	[-0.60, 0.58]
Year Two	214,132	0.06	[-0.16, 0.29]	0.08	[-0.02, 0.18]	73,026	-0.02	[-0.72, 0.69]	0.56	[-0.27, 1.38]
Year Three	190,763	-0.04	[-0.38, 0.31]	0.22*	[0.08, 0.36]	114,440	-0.34	[-0.85, 0.16]	0.60	[-0.07, 1.28]
Overall	300,041	-0.05	[-0.28, 0.19]	0.06	[-0.02, 0.15]	156,836	-0.36	[-0.91, 0.18]	0.41	[-0.27, 1.09]

(continued)

Table 10-13 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits as percentage of total visits (% PC)										
Year One										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	31,620	2.79*	[1.22, 4.37]	2.61*	[0.24, 4.98]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.29*	[0.10, 0.47]	0.20	[-0.10, 0.49]
% PC = 100%		N/A	N/A	N/A	N/A		-3.08*	[-4.79, -1.36]	-2.81*	[-5.43, -0.18]
Year Two										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	13,506	4.11*	[1.18, 7.03]	1.81	[-2.25, 5.87]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.79*	[0.15, 1.42]	0.24	[-0.38, 0.86]
% PC = 100%		N/A	N/A	N/A	N/A		-4.89*	[-8.39, -1.39]	-2.05	[-6.71, 2.61]
Year Three										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	10,693	3.20	[-2.97, 9.37]	2.67	[-1.90, 7.25]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.97	[-1.25, 3.20]	0.73	[-0.68, 2.14]
% PC = 100%		N/A	N/A	N/A	N/A		-4.17	[-12.55, 4.21]	-3.40	[-9.37, 2.56]
Overall										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	37,011	3.19*	[1.06, 5.32]	2.43	[-0.33, 5.18]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		0.54	[-0.05, 1.13]	0.31	[-0.19, 0.81]
% PC = 100%		N/A	N/A	N/A	N/A		-3.73*	[-6.39, -1.07]	-2.74	[-5.96, 0.49]

(continued)

Table 10-13 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions										
Year One	N/A	N/A	N/A	N/A	N/A	6,609	0.52	[-0.18, 1.23]	-0.90	[-2.15, 0.35]
Year Two	N/A	N/A	N/A	N/A	N/A	8,068	0.13	[-0.71, 0.97]	-0.97	[-2.13, 0.18]
Year Three	N/A	N/A	N/A	N/A	N/A	4,591	0.20	[-0.80, 1.21]	-0.41	[-1.93, 1.11]
Overall	N/A	N/A	N/A	N/A	N/A	17,292	0.29	[-0.26, 0.83]	-0.82	[-1.86, 0.23]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique MiPCT Medicaid participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported because of the low frequency of readmissions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; N/A = not applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult and children Medicaid beneficiaries, we found that MiPCT impacted several of the access to care and care coordination measures, although there were inconsistencies in the statistical significant across CGs. Specifically, **Table 10-13** shows the following:

- Among Medicaid children, the *overall* likelihood of having **primary care visits** decreased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicaid children, the *overall* likelihood of having **medical specialist visits** increased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicaid adults, the *overall* likelihood of having **primary care visits** decreased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicaid adults, **primary care visits as a share of total visits** decreased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, MiPCT increased the *overall* likelihood that a demonstration beneficiary had fewer than 70 percent of all his or her visits in primary care settings and decreased the *overall* likelihood that a demonstration beneficiary had 100 percent of all his or her visits in primary care settings.

Among Medicaid children, no statistically significant *overall* impacts were observed for the measure of surgical specialist visits. Among Medicaid adults, no statistically significant *overall* impacts were observed for the measures of medical and surgical specialist visits and 30-day unplanned readmissions.

10.4.3 Discussion of Access to Care and Coordination of Care

A common premise in PCMH initiatives is that easier access to primary care physicians will reduce use of specialists. The access requirements for practices required by MiPCT were expected to lead to higher primary care visit rates and lower medical specialist and surgical specialist visit rates, but the claims analysis found no support for this hypothesis for the Medicare population and some evidence of declines in primary care visit rates for both child and adult Medicaid beneficiaries. Also, MiPCT had no effect on the percentage of primary care physician visits as a proportion of total visits for Medicare beneficiaries, and MiPCT practices were associated with lower percentages for Medicaid adults compared with the PCMH CG.

The results of the patient experience survey suggest that actual changes in access to primary care were mixed. Patients found good access to services during routine business hours, but lesser capacity for seeing providers nights and weekends despite the incentive payment to practices that provided at least 12 hours per week of access outside of regular 9–5 office hours by the end of the first year.

MiPCT aimed to improve care coordination with the introduction of care managers, and findings from Medicare claims analysis were in the expected direction (although the same was

not true for Medicaid adults). For example, Medicare beneficiaries had a greater likelihood of having a follow-up visit within 14 days after hospital discharge and were less likely to have 30-day unplanned readmissions than PCMH CG beneficiaries, but not non-PCMH beneficiaries. As discussed in the practice transformation section (**Section 10.2**), a major focus of the care managers was coordinating care for people discharged from hospitals and ER users. A goal of MiPCT was for all practices to receive notifications from local hospitals on a timely basis, so that care managers could follow up with patients within 48 hours of discharge. Effective coordination of care depended on the care manager receiving notification of these events as soon as possible. Receiving these notifications was easier and occurred more often within a health care system than they did when the primary care practice and the hospital were in different health care systems. Patients who participated in focus groups noted care managers' efforts in following up after a hospital admission and observed that coordination between their hospital and physician's office occurred more smoothly when both providers were in the same health care system. A major initiative still being rolled out at the end of December 2014 was a partnership between MiPCT and the statewide HIE to improve ADT information transmittal between hospitals and primary care practices.

10.5 Beneficiary Experience with Care

This section describes the changes practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (**Section 10.5.1**); beneficiaries' experiences with key aspects of their care, such as communicating with providers, accessing care, getting help with self-managing their chronic conditions, and being involved in shared decision-making about treatment (**Section 10.5.2**); and a synthesis of these findings (**Section 10.5.3**). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

10.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

Care management was designed to improve the beneficiary experience with care in two ways. First, care managers provided support during care transitions. Care managers ensured that home care was in place following hospital discharge, made sure patients understood their discharge instructions, and facilitated follow-up appointments after hospital discharge. Care managers noted that many patients were confused about their medications and discharge instructions after hospital discharges, and they believed that they could help patients navigate the post-acute-care period and avoid readmission. Second, care managers provided patient education and self-management support, which aimed to improve the health of patients and give them control over their own health. In addition, patients receiving care management were encouraged to create advance directives, which would help beneficiaries, family members, and caregivers participate more effectively in end-of-life decision making. Care managers also linked beneficiaries to community resources, especially when they had disabilities, or to other long-term services and support or behavioral health services. Improved access to care in the form of 30 percent open-access appointments and continuous access to a medical decision maker was designed to increase patient satisfaction by making it easier for patients to access care.

During Year One, care managers were in the process of being embedded in most practices. Practices reported variability in how much these services were used. Overall, care

managers reported seeing between 10 and 50 patients each in their face-to-face caseload and having contact with more patients by telephone. Care managers interviewed generally reported that care management services were well received by Medicare and Medicaid beneficiaries, with many reporting patients being engaged and thankful for services. Patients reported being happy that someone, such as a care manager, was taking sustained interest in them and not limiting their interaction to what took place during a short physician visit. As one care manager put it, “A lot of people are impressed, like, ‘Wow, I never even thought this would happen; I never thought you guys would go out of your way like you are.’ So I do think patients are a lot happier with having access to our care manager.” Some care managers reported beneficiaries being suspicious, thinking it was a scam, or they did not want to sign up for another program. This resistance usually dissipated once care managers explained that they were calling from their PCP’s office.

During Year Two, the project established a Patient Advisory Group to obtain patient input on current and future initiatives. Practices also focused more on disease self-management, patient education, and providing educational resources to patients, especially those with diabetes. Care managers offered patients a set of options that allowed them to make their own decisions about what would work best for them. Care managers also helped patients navigate the medical neighborhood of specialists.

During Year Two and Year Three site visits, care managers stated that patients’ experience of care improved as a result of their work. Practices and physician organizations reported that changes in their practices likely were visible to patients with diabetes and their families, especially newly diagnosed patients. Chronic disease education and tips for disease self-management were important activities. In some practices, patients with CHF, hypertension, and asthma also benefited from practices offering more education and care management to increase use of preventive services.

10.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of MiPCT. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. Beneficiary experience with certain aspects of care also is discussed in greater detail in other sections of this chapter.

Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item alone. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner

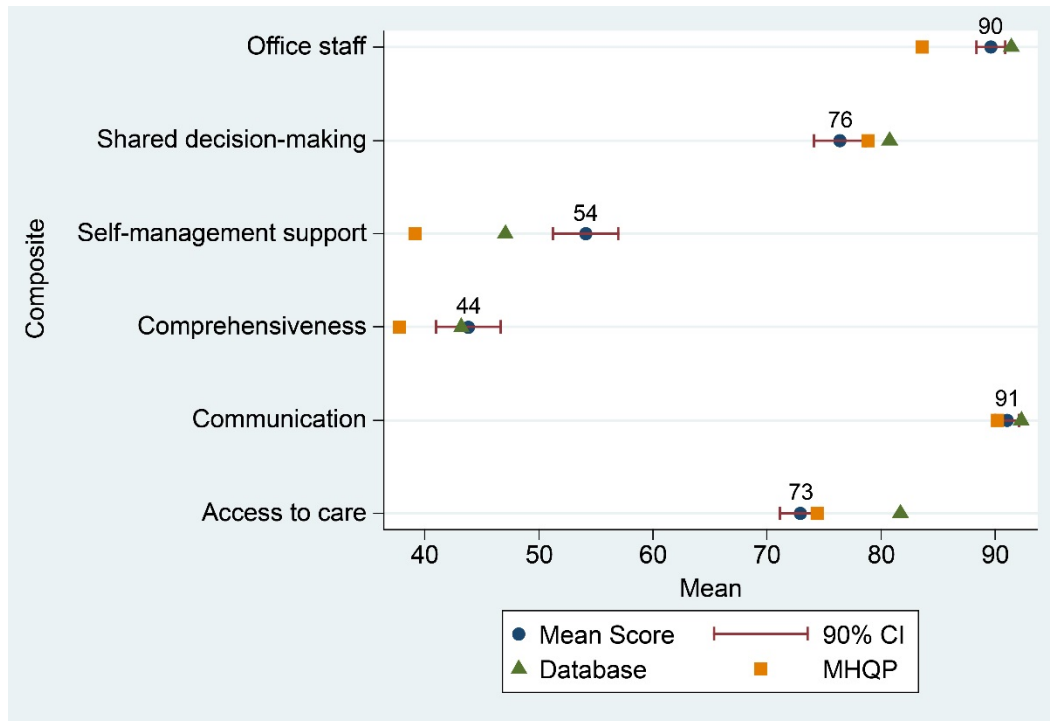
- *Self-management support.* Two yes/no questions about goal setting and barriers to care
- *Shared decision-making.* Three items regarding medication use
- *Office staff.* Two items about interactions with medical practice office staff
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 10-2** contains the composite scales for Michigan and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.⁸ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

Although Michigan providers reported an extensive level of practice transformation, beneficiaries did not experience as consistent a level of change, although beneficiaries overall scored providers comparably to the CAHPS Database and the MHQP. In comparison to the reference scores, Michigan scored significantly higher than either standard for self-management and had a high score on office staff interactions and communication composite scores. Although relatively high, the shared decision-making score was somewhat lower than the MHQP and CAHPS Database scores. The access composite score was closer to the lower MHQP mean. Michigan practices fared worst on the comprehensiveness score, but they were right at the CAHPS Database average and above the MHQP average. Each subsection below offers a description of focus group and interview findings that provide context for the CAHPS survey summary scores, and **Section 10.5.3** relates the findings on beneficiaries' experience of care with relevant components of MiPCT.

⁸ The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The CAHPS Database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study were the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 10-2
Michigan CAHPS PCMH survey composite measures
compared with two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

Communication. Both focus group participants and CAHPS PCMH survey respondents offered similar positive findings around whether their provider understands them and communicates with them effectively. Michigan’s MiPCT practices earned an adjusted score of 91 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (**Figure 10-2**).

Provider understands them. Generally, focus group participants were pleased with their PCPs and felt their providers cared about them as a person. Among those reporting a positive experience, some participants noted that their physician knew their personal life and family. One participant reported that it “seems like he [physician] knows us personally. And he’ll make phone calls from home. And then when I was going through my breast cancer and my surgeries and stuff, he would show up and visit me.” Another participant also reported that her physician “takes the time to really get to know you as a real person, your personal life and all that.” Similarly, the survey of Medicare FFS beneficiaries demonstrated widespread belief that providers usually or always knew the important information from their medical history (96 percent) and usually or always spent enough time with them (97 percent).

In contrast to the experience of Medicare FFS beneficiaries, among Medicaid-covered participants who did not feel that their provider knew their medical history, some reported not

seeing one physician consistently enough to develop a relationship and others felt rushed during appointments, with primary care physicians only interested in prescribing medications,

Effectiveness of communication. Most focus group participants said that their physician explained medical information and communicated test results clearly and effectively. For example, one participant said, “They don’t use them big fancy words. They use words that you can understand and words that you can relate to.” In the CAHPS PCMH survey of Medicare FFS beneficiaries in MiPCT practices, 97 percent reported that providers usually or always explained things in a way that was easy to understand, and 96 percent responded that their providers usually or always gave easy-to-understand information in response to their questions or concerns. In contrast, a few participants in one focus group reported that their primary care physician’s accent was a barrier to clear communication. They said they had difficulty understanding their physician and would ask the provider to repeat what was said or had someone assist in the appointment.

Focus group participants reported varied experiences with regard to how well their primary care physicians listened carefully to them and showed respect for what they had to say. Of those who had positive experiences, one participant reported that her physician “take[s] down the information that I bring to them [and] takes it very seriously.” Medicare FFS beneficiaries generally had favorable experiences, reporting that providers usually or always listened carefully to them (97 percent) and usually or always showed respect for what they had to say (98 percent). In contrast, a few participants reported they had to advocate for themselves because their physician did not take their concerns seriously.

Focus group participants reported that, because of EHR implementation within the last several years, they received handouts at the end of their primary care physician appointment that were generally viewed as helpful. The handouts contained a summary of issues discussed and a list of medications the patient was on. One participant said, “One of the things that I like now is when you check out, you get a readout of your weight, your blood pressure, your medical—what meds you’re on, what they saw you about. You get that every time you go. It’s really easy to keep up with your medications that way, because it’s always there and it’s always up to date.”

A minority of focus group participants received laboratory test results automatically from their physician, but most participants said that they needed to be proactive in obtaining the results. For those interested in receiving laboratory test results, participants discussed several different mechanisms they could use to get them. For example, several participants reported their physician has an automated telephone system that reports laboratory results. This system reports specific test values, which participants said they like. One participant who used this system said that her physician will review results with her during her next appointment, saying “Whatever tests they’re going to do, he goes from page to page and tells me [all of the results].” Another participant reported that she was able to receive test results via e-mail through the patient portal.

Some participants expressed frustration with the lack of communication from their physician’s office about lab test results. For example, in one case, a participant’s physician will just tell her that “your numbers are fine,” without providing her detailed information on her test results. One caregiver reported that her loved one’s physician’s office does not call her with test results, and that both she and her loved one have to call to receive results. This observation from

focus group participants stands in contrast to practices' own self-assessment on the provider survey; 90 percent of practices reported that tracking and follow up for test results are done consistently.

Access to care. In the CAHPS PCMH survey of Medicare patients, MiPCT practices earned a weighted mean composite score of 73 out of 100 on a multiquestion composite scale that measures how easily patients can access their primary care practices (**Figure 5-2**). As described in **Section 10.4.1**, patients in MiPCT practices generally could access primary care practices during routine hours but reported less access during non-business hours.

An additional facet of access is wait times for appointments, which seemed to not be a major concern to patients in MiPCT practices. According to the CAHPS PCMH survey of MiPCT Medicare beneficiaries, 72 percent said that their appointment usually or always began within 15 minutes of its scheduled start time. In addition, office wait times were not an issue according to focus group participants; in fact, some patients reported that there had been a reduction in wait times during the past year. One participant reported, "My office says, 'If you wait more than 15 minutes, please come up to the desk.'"

Care coordination. As described in **Section 10.4.1**, patients' experience with care managers and coordination with hospitals varied over time.

Self-management support. On the basis of Medicare FFS beneficiaries' responses to our CAHPS PCMH survey, MiPCT practices earned a weighted score of 54 out of 100 on a multiquestion composite scale that assessed the degree to which practices offered patients self-management support (**Figure 10-2**). Care managers we interviewed noted that they gave patients information about nonmedical services that could help them take better care of their health, but only a few focus group participants reported they had received this information, likely because few focus group participants reported having contact with a care manager. Among focus group participants, those who had received this information presented compelling examples of how their primary care physician's office helped them. One participant received help from the physician office staff with maintaining gas service in his home, and another received referrals to sources for a free infant car seat and infant clothing. Another participant, who is a caregiver for her grandson, reported that the physician's office had an asthma coach, whose services she used. The asthma coach "will check the [bed] room to make sure that the bedding is okay and allergenic pillowcases and stuff. If you don't have none, a mattress or box springs, they give you a voucher so you can get a bed and stuff."

Many participants across all groups reported that their primary care physicians talked to them about health-related goals, such as losing weight or smoking cessation. They reported varying degrees to which their primary care physician was actively involved in connecting participants to resources to help them achieve those goals. This variation is reflected in responses to the CAHPS PCMH survey from MiPCT Medicare beneficiaries: 64 percent of Medicare MiPCT patients had practice staff who talked to them about specific health goals, and 42 percent of respondents indicated that practice staff talked to them about things that made it hard for them to take care of their health.

Some focus group participants reported that their physicians connected them with nutrition or smoking cessation classes or prescribed a smoking cessation aid. In another example, some participants with high blood pressure reported that their physician just prescribes them medications, whereas others reported that they are advised to monitor their blood pressure frequently and track changes with log books. One participant used a log book to monitor her blood pressure and said “Of course, with that you can see what the pattern is. I was able to bring my blood pressure down to good levels...So that was a good program.”

However, the general support for the goals did not always translate into a plan of action. A focus group participant reported her primary care physician’s support for her losing weight, but she did not cite specific help received from the primary care physician to do so. Similarly, other participants’ primary care physicians provided information, but no follow up. As one participant said, “They gave you pieces of paper and then you won’t see them for a year.”

Shared decision-making. Most focus group participants felt that they had a partnership with their primary care physicians and felt that the physician was receptive to hearing the patient’s preferences when making health care decisions. For example, several participants reported that their physician understood their personal approach to health care and preferences for taking medication or pursuing alternative treatments. One participant reported that, even though her physician may not have agreed with her decision, he gave her alternative medications for her condition. Another participant trying to reduce the number of medications she was taking reported that her physician was “helping me stay off too much medicine.” The composite measure that assesses the degree to which practices engage in shared decision-making with patients from the CAHPS PCMH survey is largely based on questions that ask about medication decisions, and MiPCT practices earned a score of 76 out of 100 (**Figure 10-2**). This composite reflects that 94 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication, 80 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication, and 75 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Looking at care beyond medications, some focus group participants noted that their primary care physicians, especially younger ones, involved patients in treatment decisions, in contrast with specialists. Yet, participants also reported instances where the physicians insisted on following standard medical practice rather than following the patient’s preferences. In one participant’s case, the primary care physician insisted that the patient get a colonoscopy (against the patient’s preferences); that screening test detected colon cancer that could then be treated successfully—an outcome for which the patient was grateful.

Office staff. Michigan MiPCT practices earned high marks for the quality of their office staff from most people, especially among Medicare beneficiaries. For example, practices earned a CAHPS PCMH survey score of 90 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks in a respondent’s practice (**Figure 10-2**). Of those focus group participants who commented on the quality of staff at their primary care physician’s office, most people reported positive experiences in terms of friendliness and professionalism. Some participants reported that the office staff knew them

personally because both the patient and the staff have been with the same office for many years. Also on the survey, when asked to give a global rating of their provider, 90 percent of Michigan Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. More than half (54 percent) gave their provider the highest possible rating—10 out of 10.

In contrast, participants with Medicaid-only coverage who received care from one community health center reported a uniformly negative experience with office staff there, saying that the staff did not return phone calls and treated patients at the front desk as if they were a nuisance.

Additional topics covered in the focus groups. The focus groups covered several additional topics, including participants' perceptions of their providers' medical expertise, their team-based approach to care, the use of ERs, patient portal availability and usage, and activities practices implemented to seek patient feedback.

Team-based approach to care. Few focus group participants mentioned team-based care. A few participants reported that they see a physician assistant or nurse practitioner as opposed to their primary care physician, but those who did were pleased with the availability of the additional practitioners for routine care and the ability to see a physician for more complex issues. Most participants reported that they mostly saw a physician assistant or nurse practitioner when they called the office to schedule a same-day appointment. As one participant said, "If I'm really sick, which is very seldom, if I want to get in to see doctor, I can't. It has to be a nurse practitioner. Then I could get in, which is okay with me, because usually it's an ear infection or something simple."

Patient portal. Many participants in the majority of focus groups said that their primary care physician offered them access to a patient portal, but most were not using it. Of the minority of participants who used the patient portal, most "love it" and "use it all the time." One person reported that her physician could look online and determine if she was registered on the portal and "every time they enter something into my chart, I can go online and see what they've entered. It shows me my appointment times, what my blood pressure was when I was there the last time, what my weight was." One participant was happy with being able to use a patient portal to ask a physician a question. He reported that his physician would respond even over the weekend, and his query was never passed on to another provider to answer. Of those who had heard of the patient portal but did not use it, one common barrier to use was lack of Internet access. Some reported they did not have computers so they could not access the portal, or, if they did have a computer, they did not necessarily have Internet access, saying, "That's a big issue, not having Internet in my house."

Patient feedback. A majority of participants across all groups have been asked for feedback from a health care provider, but, in most cases, these requests came from hospitals or specialists (e.g., after every hospitalization or every 3 months from a specialist's office). Just a few reported receiving requests for feedback via a questionnaire from a primary care physician. Regardless of the type of provider, participants said they received a link to an e-mail survey or a call at their home from someone taking a survey on behalf of a provider they had recently seen. In a few cases, they received a survey mailed to their home. Most surveys discussed by

participants were brief (e.g., 10 questions) and focused on the patient's satisfaction with their health care experience.

10.5.3 Discussion of Beneficiary Experience with Care

Practices implemented several initiatives to improve patient experience with care, including providing care management, more open-access appointments, greater after-hours access, enhanced communications with patients regarding lab tests, and a patient portal. In addition, although patient input into the design and management of the project was not extensive, a Patient Advisory Group was established during Year Two of the project.

In general, Michigan Medicare patients in MiPCT rated their physicians quite highly, both in focus groups and in the CAHPS PCMH survey in absolute terms and relative to the CGs. In absolute terms, MiPCT Medicare patients rated their physicians on the CAHPS survey highly in terms of office staff interactions, shared decision-making, and communication—domains that, however, were not a focus of MiPCT. Although in the range with the comparison MHQP and CAHPS Database, Michigan rated much lower on self-management and comprehensiveness, and about even on the access composite score, which were more related to MiPCT initiatives.

Focus group participants' sentiments about their relationship with their primary care physician varied by insurance or caregiver status, with Medicare-only or Medicare/Medicaid-covered participants and parents of Medicaid-covered children generally reporting positive relationships with their physicians. Only a few participants in these groups reported negative experiences. In contrast, Medicaid-only covered adults reported negative relationships with their primary care physicians and practices, citing a lack of partnership with the physician, feeling rushed through appointments, and not receiving requested information. In addition, the ability of patients to use features intended to improve their experience of care varied; for example, increased communication with their practice through a patient portal had no effect on patients who did not have home Internet access, and open access appointments did not help patients whose main barrier to visiting their practice was transportation.

10.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Michigan expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees' views on the likelihood of these savings materializing (*Section 10.6.1*), impacts on service utilization and expenditures (*Section 10.6.2*), a decomposition of the impacts on expenditures (*Section 10.6.3*), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 10.6.4*), and a synthesis of these findings (*Section 10.6.5*).

10.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

Michigan expected most of the cost savings under MiPCT to come from reducing service use among high users of health care services and reducing overall use of hospitals and ERs, including ambulatory care-sensitive ER visits, inpatient stays, and readmissions. Through quality improvement efforts, they also expected to move to a lower-cost procedure mix.

MiPCT's focus was broader than high-cost patients. Although care managers were seen as the primary mechanism for achieving short-term cost savings, the eventual goal was population health management and across-the-board risk reduction and health improvement for all patients. "Transformed primary care" and less intensive care management, with their focus on disease management and self-management support, were expected to reduce health care utilization and costs by keeping patients from developing chronic illnesses and by reducing the severity of diseases for those who do have them. Care managers and MiPCT administrators noted, however, that addressing patients' behavior change may not yield savings during the time period of the MAPCP Demonstration, partly because of the time it takes to implement a complicated intervention like this. In addition, overall health improvement will only be observable over the long run and would unlikely be measurable during the time of the demonstration.

Reductions in medical care use by high medical care users were mentioned by several interviewees as "low-hanging fruit." The primary tool to decrease service use in this population was care management. Care coordination, medication reconciliation after discharge from the hospital, and prompt attention to medical problems by care managers were believed to reduce inpatient admissions, readmissions, and ER use by medically complex patients. Improved access to care via open access and 24-hour-a-day, 7-day-a-week access to the PCMH were also expected to reduce ER utilization and ambulatory care-sensitive hospital admissions. Several interviewees also indicated that transformed primary care (i.e., better tracking and meeting the needs of their patients) would result in lower ER use.

Although the use of care managers increased substantially over the course of the demonstration, the relatively low number of people receiving these services might have limited their impact. Moreover, although MDC provided lists of patients that their algorithm identified as high risk, many practices felt that these claims-based data were too old to be useful, and some observers felt that the methodology for identifying patients was flawed.

10.6.2 Impacts on Utilization and Expenditures

MiPCT was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare expenditure and Medicare and Medicaid utilization outcomes between MiPCT and two CGs: PCMHs and non-PCMHs.

- **Table 10-14** reports on changes in total Medicare expenditures and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables. Michigan did not provide expenditure data for Medicaid managed care encounters. Because managed care encounters represent the majority of Medicaid claims data provided by the state, we were unable to examine Medicaid expenditures.

- **Table 10-15** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries.
- **Table 10-16** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries.

For Medicare, estimates in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

We describe statistically significant *overall* findings for each results table. We also note when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 10.6.5**.

Table 10-14
Michigan: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries: Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 226,858)	-34.19	[-71.01, 2.63]	-2.19	[-35.90, 31.53]
Year Two (N = 228,779)	-38.33*	[-73.33, -3.33]	-12.61	[-62.80, 37.58]
Year Three (N = 222,462)	-57.79*	[-85.62, -29.96]	-47.58*	[-85.45, -9.70]
Overall (N = 299,907)	-43.37*	[-73.53, -13.21]	-20.68	[-58.61, 17.26]
Overall Aggregate	-\$294,714,754*		-\$140,492,979	

(continued)

Table 10-14 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Acute-care				
Year One (N = 226,858)	-21.36*	[-37.90, -4.81]	-5.41	[-23.04, 12.22]
Year Two (N = 228,779)	-20.88*	[-37.18, -4.59]	-6.77	[-30.50, 16.96]
Year Three (N = 222,462)	-26.34*	[-41.90, -10.78]	-25.38*	[-45.77, -4.98]
Overall (N = 299,907)	-22.84*	[-37.08, -8.60]	-12.45	[-31.65, 6.75]
Overall Aggregate	-\$155,207,974*		-\$84,616,822	
Post-acute-care				
Year One (N = 226,858)	-11.54*	[-18.23, -4.86]	-6.81	[-18.38, 4.76]
Year Two (N = 228,779)	-14.72*	[-21.82, -7.63]	-14.52	[-31.65, 2.62]
Year Three (N = 222,462)	-12.78*	[-20.94, -4.61]	-5.80	[-16.72, 5.12]
Overall (N = 299,907)	-13.03*	[-19.14, -6.91]	-9.08	[-20.77, 2.61]
Overall Aggregate	-\$88,512,362*		-\$61,725,693	
ER visits not leading to hospitalization				
Year One (N = 226,858)	-0.83	[-2.39, 0.73]	0.30	[-0.88, 1.47]
Year Two (N = 228,779)	-0.39	[-2.19, 1.40]	0.57	[-0.83, 1.96]
Year Three (N = 222,462)	-1.58	[-3.25, 0.10]	-0.11	[-2.20, 1.98]
Overall (N = 299,907)	-0.93	[-2.44, 0.59]	0.25	[-1.10, 1.61]
Overall Aggregate	-\$6,309,564		\$1,723,557	
Outpatient				
Year One (N = 226,858)	7.59	[-1.92, 17.10]	13.55*	[6.73, 20.38]
Year Two (N = 228,779)	5.46	[-6.18, 17.10]	14.50*	[8.44, 20.56]
Year Three (N = 222,462)	2.72	[-7.42, 12.87]	3.70	[-5.14, 12.55]
Overall (N = 299,907)	5.26	[-4.82, 15.35]	10.63*	[4.09, 17.17]
Overall Aggregate	\$35,770,387		\$72,204,820*	
Specialty physician				
Year One (N = 226,858)	-8.36*	[-14.73, -1.99]	-4.25	[-8.86, 0.36]
Year Two (N = 228,779)	-8.80*	[-14.80, -2.80]	-5.25	[-10.80, 0.30]
Year Three (N = 222,462)	-13.02*	[-18.91, -7.13]	-12.19*	[-19.54, -4.85]
Overall (N = 299,907)	-10.05*	[-15.77, -4.32]	-7.21*	[-12.57, -1.85]
Overall Aggregate	-\$68,261,055*		-\$48,969,276*	
Primary care physician				
Year One (N = 226,858)	-0.33	[-2.67, 2.01]	-0.71	[-3.38, 1.95]
Year Two (N = 228,779)	-2.29	[-4.59, 0.01]	-4.08	[-8.52, 0.36]
Year Three (N = 222,462)	-3.75*	[-6.49, -1.01]	-3.29	[-6.66, 0.09]
Overall (N = 299,907)	-2.12	[-4.36, 0.12]	-2.70	[-5.90, 0.50]
Overall Aggregate	-\$14,407,768		-\$18,347,123	
Home health				
Year One (N = 226,858)	1.20	[-1.78, 4.18]	2.32	[-0.02, 4.65]
Year Two (N = 228,779)	0.49	[-2.22, 3.20]	2.73*	[0.14, 5.31]
Year Three (N = 222,462)	-0.63	[-4.06, 2.80]	0.75	[-2.64, 4.15]
Overall (N = 299,907)	0.35	[-2.10, 2.81]	1.94	[-0.54, 4.42]
Overall Aggregate	\$2,409,262		\$13,184,419	

(continued)

Table 10-14 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other non-facility				
Year One (N = 226,858)	-0.23	[-1.99, 1.53]	0.97	[-0.37, 2.31]
Year Two (N = 228,779)	-0.04	[-2.10, 2.01]	0.44	[-1.27, 2.14]
Year Three (N = 222,462)	-1.39	[-3.39, 0.61]	-1.20	[-3.79, 1.39]
Overall (N = 299,907)	-0.55	[-2.14, 1.04]	0.08	[-1.48, 1.64]
Overall Aggregate	-\$3,739,930		\$510,102	
Laboratory				
Year One (N = 226,858)	-1.96*	[-3.41, -0.52]	-2.09*	[-3.81, -0.38]
Year Two (N = 228,779)	-2.11*	[-3.67, -0.55]	-2.63*	[-5.09, -0.18]
Year Three (N = 222,462)	-3.80*	[-7.39, -0.22]	-3.32*	[-6.63, -0.01]
Overall (N = 299,907)	-2.62*	[-4.57, -0.67]	-2.68*	[-5.14, -0.23]
Overall Aggregate	-\$17,795,098*		-\$18,218,218*	
Imaging				
Year One (N = 226,858)	-0.13	[-0.97, 0.71]	-0.37	[-1.38, 0.64]
Year Two (N = 228,779)	-0.23	[-1.20, 0.74]	-0.61	[-1.98, 0.75]
Year Three (N = 222,462)	0.20	[-1.06, 1.46]	-1.08	[-2.95, 0.79]
Overall (N = 299,907)	-0.05	[-0.99, 0.89]	-0.69	[-2.04, 0.66]
Overall Aggregate	-\$367,962		-\$4,666,289	
Other facility				
Year One (N = 226,858)	-1.38	[-3.91, 1.15]	0.09*	[0.01, 0.18]
Year Two (N = 228,779)	-0.68	[-2.06, 0.71]	0.27	[-0.05, 0.59]
Year Three (N = 222,462)	-0.17	[-0.70, 0.37]	0.19	[-0.04, 0.43]
Overall (N = 299,907)	-0.74	[-2.22, 0.73]	0.19	[-0.01, 0.38]
Overall Aggregate	-\$5,045,988		\$1,263,264	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall.
- A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that MiPCT decreased total Medicare expenditures and a number of expenditure components, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 10-14** shows the following:

- The growth in *overall aggregate* **total Medicare expenditures** was \$294.7 million lower for beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **acute-care expenditures** was \$155.2 million lower for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **post-acute-care expenditures** was \$88.5 million lower for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices.
- The growth in *overall aggregate* **outpatient expenditures** was \$72.2 million greater for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **specialty physician expenditures** was \$68.3 million lower for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices and \$49 million lower compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate* **laboratory expenditures** was \$17.8 million lower for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices and \$18.2 million lower compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for expenditures for ER visits not leading to hospitalization, primary care physician expenditures, home health expenditures, other non-facility expenditures, imaging expenditures, or other facility expenditures.

Table 10-15
Michigan: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 226,858)	-5.53*	[-8.77, -2.29]	-1.70	[-5.33, 1.93]
Year Two (N = 228,779)	-3.77*	[-6.97, -0.58]	-0.37	[-5.04, 4.30]
Year Three (N = 222,462)	-4.48*	[-8.36, -0.60]	-2.09	[-7.28, 3.10]
Overall (N = 299,907)	-4.59*	[-7.65, -1.53]	-1.38	[-5.60, 2.84]
Overall Aggregate	-10,395*		-3,126	
ER visits not leading to hospitalization				
Year One (N = 226,858)	0.83	[-3.06, 4.72]	5.38*	[1.20, 9.55]
Year Two (N = 228,779)	2.85	[-0.79, 6.50]	6.53*	[2.30, 10.76]
Year Three (N = 222,462)	1.69	[-3.19, 6.56]	5.31	[-0.17, 10.78]
Overall (N = 299,907)	1.80	[-1.67, 5.26]	5.74*	[1.70, 9.79]
Overall Aggregate	4,069		13,011*	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found some evidence that MiPCT practices changed the utilization, although there were inconsistencies in the direction and statistical significance across CGs. Specifically, **Table 10-15** shows the following:

- The *overall aggregate* number of **all-cause admissions** decreased by 10,395 among Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of **ER visits not leading to hospitalization** increased by 13,011 among Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.

Table 10-16
Michigan: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs		N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions										
Year One	195,234	0.05	[-0.06, 0.16]	0.19*	[0.12, 0.26]	63,889	-0.14	[-0.47, 0.20]	0.18	[-0.10, 0.46]
Year Two	214,132	-0.14	[-0.29, 0.01]	0.07	[-0.02, 0.16]	73,026	0.45*	[0.18, 0.71]	0.65*	[0.39, 0.92]
Year Three	190,763	-0.49*	[-0.72, -0.26]	-0.08	[-0.20, 0.05]	114,440	-0.02	[-0.31, 0.27]	0.14	[-0.01, 0.28]
Overall	300,041	-0.17*	[-0.32, -0.02]	0.07	[-0.01, 0.16]	156,836	0.10	[-0.17, 0.36]	0.32*	[0.15, 0.48]
Overall Aggregate		-2,728*		1,169			567		1,852*	
ER visits not leading to hospitalization										
Year One	195,234	-0.46	[-1.35, 0.43]	0.11	[-0.28, 0.51]	63,889	-0.69	[-2.05, 0.68]	-0.18	[-0.79, 0.44]
Year Two	214,132	-0.36	[-1.23, 0.51]	0.42*	[0.03, 0.81]	73,026	1.53*	[0.38, 2.68]	2.31*	[1.72, 2.91]
Year Three	190,763	-0.30	[-1.39, 0.80]	0.57*	[0.12, 1.03]	114,440	-0.08	[-1.19, 1.02]	0.59	[-0.04, 1.22]
Overall	300,041	-0.38	[-1.28, 0.53]	0.36	[-0.02, 0.73]	156,836	0.27	[-0.87, 1.40]	0.93*	[0.39, 1.47]
Overall Aggregate		-6,079		5,728			1,558		5,422*	
Low birth weight admissions										
Overall	765	0.81	[-1.73, 3.35]	-0.22	[-2.22, 1.78]	N/A	N/A	N/A	N/A	N/A
Overall Aggregate		6		-2						

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique MiPCT participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Because of the low frequency of births in any one quarter, the change estimate was calculated as the average difference in the occurrence of low birthweight in the sample before and after the implementation of MiPCT.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found evidence that MiPCT practices changed the utilization, although there were inconsistencies in the direction and statistical significance across CGs. Specifically, **Table 10-16** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** decreased by 2,728 among Medicaid child beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 1,852 among Medicaid adult beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 5,422 among Medicaid adult beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.
- Although the *overall aggregate* number of Medicaid child beneficiaries with at least one **ER visit not leading to hospitalization** was not statistically significant, the positive estimates in Years Two and Three suggested a potential trend toward an increase in the number of ER visits not leading to hospitalization for beneficiaries assigned to MiPCT practices compared with non-PCMH practices.

No statistically significant *overall* impacts were observed for low birth weight admissions.

10.6.3 Impacts on Utilization and Expenditures Targeted By State

In addition to the utilization and expenditure categories analyzed across all eight MAPCP Demonstration states, we also analyzed categories noted specifically in Michigan's application that were expected to be affected by the demonstration. This analysis is limited to Medicare data only. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 10-17** reports covariate-adjusted differences in state-specific expenditures and between beneficiaries assigned to MiPCT practices and two CGs: PCMHs and non-PCMHs. **Table 10-17** contains measures of expenditures for hospital readmissions, office visits, and preventive services. Details on these measures can be found in **Appendix D**. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. A *negative* value corresponds to *lower growth* in expenditures, whereas a *positive* value corresponds to *greater growth*. Estimates are presented overall for all quarters of the demonstration.

Table 10-17
Michigan: Comparison of average MAPCP Demonstration effect estimates for selected expenditure measures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT vs. CG PCMHs		MiPCT vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Expenditures for hospital readmissions Overall (N = 299,907)	-0.78	[-1.88, 0.31]	-0.59	[-2.54, 1.36]
Expenditures for office visits/preventive services Overall (N = 299,907)	-1.64	[-7.45, 4.17]	-5.39*	[-10.49, -0.28]

NOTES:

- Expenditures for hospital readmissions and office visits/preventive services are PBPM.
- Estimates are interpreted as the difference in the rate of growth in expenditures relative to the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Numbers in parentheses represent sample sizes of unique MiPCT participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that MiPCT decreased expenditures for office visits/preventive services, although this result was inconsistent in statistical significance across CGs. Specifically, **Table 10-17** shows the following:

- The *overall* growth in **expenditures for office visits/preventive services** was lower for Medicare beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH comparison practices.

No statistically significant *overall* impacts were observed for expenditures for hospital readmissions.

10.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Michigan relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics: gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, whereas net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in **Table 10-13** from **Section 10.6.2**. (See **Appendix C** for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration on PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from **Table 10-14**. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP Demonstration fees. Positive net savings estimates denote that either there were gross losses or the MAPCP Demonstration fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 10-18 reports estimated gross and net savings and return on investment for the MAPCP Demonstration during its first 12 quarters. Estimates are presented both annually and across all quarters to date. Confidence intervals are presented for estimates of gross and net savings.

Table 10-18
Michigan: Estimates of gross savings, fees paid, and net savings and return on fees

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	\$77,169,770	−\$5,940,860	\$160,280,400	\$21,897,042	\$55,272,728	−\$27,837,902	\$138,383,358	3.52
Year Two	\$88,068,247*	\$7,643,868	\$168,492,625	\$21,864,098	\$66,204,149	−\$14,220,229	\$146,628,527	4.03
Year Three	\$129,476,738*	\$67,131,980	\$191,821,495	\$21,177,224	\$108,299,514*	\$45,954,756	\$170,644,272	6.11
All Years	\$294,714,755*	\$89,764,980	\$499,664,530	\$64,938,363	\$229,776,392*	\$24,826,617	\$434,726,167	4.54
Relative to non-PCMH comparison beneficiaries								
Year One	\$4,934,855	−\$71,162,704	\$81,032,415	\$21,897,042	−\$16,962,187	−\$93,059,746	\$59,135,373	0.23
Year Two	\$28,968,355	−\$86,342,338	\$144,279,047	\$21,864,098	\$7,104,257	−\$108,206,436	\$122,414,950	1.32
Year Three	\$106,589,769*	\$21,727,064	\$191,452,475	\$21,177,224	\$85,412,546*	\$549,840	\$170,275,251	5.03
All Years	\$140,492,980	−\$117,301,017	\$398,286,977	\$64,938,363	\$75,554,617	−\$182,239,380	\$333,348,614	2.16

NOTES:

- Gross savings. Estimated increase (or decrease) in per beneficiary per month Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- Net savings. The estimate of gross savings minus the total Medicare fees paid.
- Fees. Beneficiaries with less the 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- Return on fees: The estimate of gross savings divided by total Medicare fees paid.

PCMH = patient-centered medical home.

SOURCE: Medicare claims 2012:Q1–2014:Q4.

* Statistically significant at the 10 percent level.

In the analysis of budget neutrality relative to the PCMH CG, **Table 10-18** shows the following:

- The MAPCP Demonstration in Michigan resulted in an estimated gross savings of \$294,714,755 for Medicare with a 90 percent confidence interval that extended from \$89.8 million to \$499.7 million.
- Total fees paid out on the basis of the demonstration were \$64,938,363, which translates into an estimated net savings of \$229,776,392 and a return on fees of 4.54. Net savings were also statistically significant with a confidence interval that extended from \$24.8 million to \$434.7 million.
- Estimates of gross and net savings were statistically significant in Year Three of the demonstration, although the gross savings estimate alone was statistically significant in Year Two.

In the analysis of budget neutrality relative to the non-PCMH CG, **Table 10-18** shows the following:

- The MAPCP Demonstration in Michigan resulted in an estimated gross savings of \$140,492,980 for Medicare. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total fees paid out on the basis of the demonstration were \$64,938,363, which translates into an estimated net savings of \$75,554,617. The 90 percent confidence interval again contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net savings were statistically significant in Year Three of the demonstration only.

10.6.5 Discussion of Effectiveness

Michigan expected that most of MiPCT's cost savings would occur through lower service use among high users of health care services and by reducing ER visits, inpatient stays, and readmissions. Care managers were thought to be the key mechanism for achieving those results. Under MiPCT, care managers received data to identify high users of health care services. To reduce service use, care managers offered follow-up to both high users of health care services and those who had recently been hospitalized by ensuring post-discharge primary care visits and doing medication reconciliation. Care managers offered self-management support and disease-specific education that would improve population health overall. Yet, as **Section 10.2.1** describes, care managers began this work in Year One slowly, and only in Year Three were they well integrated into the practice team and able to allocate resources to the highest users of health care services. Thus, they interacted with relatively few patients, which could be one reason MiPCT's impact was not larger.

Analysis of Medicare claims data found that MiPCT was associated with significant reductions in Medicare spending overall relative to the PCMH CG, but not relative to the

non-PCMH CG. Compared with the PCMH practices, beneficiaries assigned to MiPCT practices had \$43.37 total lower Medicare expenditures PBPM; the statistically significant net savings for beneficiaries assigned to MiPCT practices in contrast to the PCMH CG was \$229,703,044. Estimates of aggregate savings relative to the non-PCMH CG were large, but not statistically significant. Failure to find statistically significant differences for the non-PCMH CG was unexpected because MiPCT should have widened the differential between demonstration practices and the non-PCMH practices.

Several categories of services drive the overall lower expenditure for Medicare beneficiaries assigned to MiPCT practices. Acute-care, post-acute-care, specialty physicians, outpatient services, and laboratory services expenditures were statistically significantly lower relative to at least one of the CGs. Consistent with lower overall estimates of acute-care expenditures, Medicare beneficiaries attributed to MiPCT practices had lower all-cause admissions relative to the PCMH CG (although not the non-PCMH CG). In addition, an analysis of quarterly trends suggests that primary care physician expenditures grew more slowly in MiPCT than in the PCMH CG.

With regard to care provided to the Medicaid population, only changes in utilization are observable because Michigan Medicaid pays MCOs on a capitated basis, and Medicaid expenditure data are not available. For Medicaid children assigned to MiPCT practices, there was a decrease in the rate of all-cause admissions when compared with PCMH practices, but no significant differences for low-birth weight admissions or the asthma utilization measures compared with both PCMH and non-PCMH CGs. Unexpectedly, for Medicaid adults, all-cause admissions and ER visits not leading to a hospitalization were higher overall for beneficiaries assigned to MiPCT relative to non-PCMH practices. The inconsistent findings for children and adults, and differences in significance relative to PCMH practices and non-PCMH practices, are not easily explained by our understanding of how the MiPCT initiative was implemented. However, the structural barriers to accessing care reported by Medicaid beneficiaries in focus groups who receive care at MiPCT practices (rather than the MiPCT initiative itself)—such as unwelcoming office staff and having transportation more easily to hospitals than their PCMH—may help explain these findings.

10.7 Special Populations

This section describes any efforts by practices or the overall MiPCT initiative to target special patient populations (according to our interviews) (*Section 10.7.1*); impacts on special patient population expenditures, care quality, health outcomes, and service utilization (based on claims data) (*Sections 10.7.2*); and a synthesis of these findings (*Section 10.7.3*).

10.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

MiPCT was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare expenditures for special populations of beneficiaries, including beneficiaries with multiple chronic conditions, behavioral health conditions, disabilities, or a diagnosis of asthma. The demonstration was also expected to have a positive impact on those who may experience disparities in access to and quality of health care,

including beneficiaries who are dually eligible for Medicare and Medicaid, who live in rural areas, or who belong to racial/ethnic minorities.

MiPCT did not target any specific population for special interventions or services, other than high-risk individuals who received care management. Respondents believed that the patient-centered approach of PCMHs made a targeted approach to particular populations unnecessary. Thus, MiPCT did not have special interventions designed for particular subgroups, such as Hispanics, African Americans, or people dually eligible for Medicare and Medicaid. Despite not designating specific subpopulations, respondents believed that the most disadvantaged populations had the most to gain from the MiPCT approach. In particular, many respondents argued that MiPCT's focus on care management was particularly beneficial to people at high risk for hospital readmission and people with multiple chronic conditions. Despite this general lack of targeting specific populations, over the course of the demonstration, MiPCT provided special training on people with diabetes, behavioral health problems, and end-of-life care.

10.7.2 Impacts on Special Populations

- **Table 10-19** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 10-20** reports on changes in Medicare expenditures and utilization for beneficiaries dually eligible for Medicare and Medicaid.
- **Tables 10-21** through **10-28** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 10-29** through **10-30** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 10.7.3**.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are

interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables.

For these special populations where we find a statistically significant negative association between MiPCT and total Medicare expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

Table 10-19
Michigan: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 54,950)	-38.78	[-124.92, 47.36]	-22.66	[-111.34, 66.01]
Year Two (N = 50,767)	-216.55*	[-310.73, -122.37]	-238.04*	[-409.12, -66.96]
Year Three (N = 42,771)	-106.81*	[-191.62, -22.00]	-151.48*	[-287.10, -15.85]
Overall (N = 66,610)	-118.93*	[-195.40, -42.46]	-133.37*	[-251.29, -15.45]
Overall Aggregate	-\$175,211,800*		-\$196,482,066*	
Behavioral health conditions only				
Year One (N = 30,485)	19.54	[-48.30, 87.37]	-2.40	[-77.13, 72.33]
Year Two (N = 29,875)	-42.30	[-109.38, 24.78]	-135.90*	[-247.85, -23.95]
Year Three (N = 26,906)	-131.22*	[-207.46, -54.99]	-22.97	[-134.76, 88.82]
Overall (N = 39,822)	-49.07	[-100.77, 2.63]	-54.26	[-137.85, 29.33]
Overall Aggregate	-\$41,979,771		-\$46,422,948	
Disabled beneficiaries only				
Year One (N = 58,148)	-18.39	[-65.45, 28.66]	45.89	[-1.12, 92.91]
Year Two (N = 59,874)	-24.09	[-68.95, 20.77]	6.95	[-67.55, 81.45]
Year Three (N = 59,149)	-28.76	[-69.61, 12.09]	-20.52	[-86.38, 45.33]
Overall (N = 80,773)	-23.81	[-62.28, 14.65]	10.35	[-45.85, 66.56]
Overall Aggregate	-\$41,162,992		\$17,893,172	

(continued)

Table 10-19 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
total PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Dually eligible beneficiaries only				
Year One (N = 34,894)	-26.58	[-98.45, 45.29]	15.64	[-41.51, 72.79]
Year Two (N = 35,982)	-56.47	[-127.36, 14.42]	-57.53	[-141.22, 26.16]
Year Three (N = 34,998)	-102.24*	[-171.07, -33.40]	-48.58	[-109.06, 11.89]
Overall (N = 48,054)	-61.97*	[-122.39, -1.56]	-30.69	[-88.47, 27.09]
Overall Aggregate	-\$63,904,408*		-\$31,647,952	
Rural beneficiaries only				
Year One (N = 14,783)	-27.27	[-72.80, 18.25]	-31.25	[-84.17, 21.66]
Year Two (N = 15,461)	-8.92	[-78.59, 60.75]	34.32	[-34.71, 103.34]
Year Three (N = 15,239)	-6.48	[-62.48, 49.53]	19.74	[-12.04, 51.52]
Overall (N = 20,405)	-14.01	[-63.55, 35.54]	8.29	[-30.14, 46.71]
Overall Aggregate	-\$6,363,192		\$3,765,854	
Non-White beneficiaries only				
Year One (N = 30,386)	17.46	[-79.76, 114.68]	18.07	[-70.47, 106.60]
Year Two (N = 31,600)	-22.81	[-112.53, 66.91]	-97.72	[-254.74, 59.30]
Year Three (N = 31,649)	-55.46	[-164.35, 53.43]	-167.28*	[-262.55, -72.00]
Overall (N = 42,766)	-20.85	[-110.87, 69.16]	-83.86	[-188.46, 20.73]
Overall Aggregate	-\$18,965,981		-\$76,268,795	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall.
- A *negative* value corresponds to *lower growth* in expenditures relative to the CG. A *positive* value corresponds to *greater growth* relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries belonging to the selected special populations, we found that MiPCT was successful in slowing the growth of total Medicare expenditures for beneficiaries with multiple chronic conditions. Also, growth of Medicare expenditures slowed among MiPCT beneficiaries who were dually eligible for Medicare and Medicaid, although the results were inconsistent across CGs. Specifically, *Table 10-19* shows the following:

- Among Medicare **beneficiaries with multiple chronic conditions**, the growth in *overall aggregate* total Medicare expenditures was \$175.2 million lower when MiPCT beneficiaries were compared with beneficiaries assigned to PCMH practices, and \$196.5 million lower when compared with beneficiaries assigned to non-PCMH practices.
- Among **dually eligible beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$63.9 million lower when MiPCT beneficiaries were compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts of MiPCT on total Medicare expenditures were observed among Medicare beneficiaries with behavioral health conditions, disabled beneficiaries, rural beneficiaries, and non-White beneficiaries.

Table 10-20 shows that the lower growth in total Medicare expenditures among dually eligible beneficiaries was largely driven by lower growth in expenditures for ER visits not leading to hospitalization, specialty physician expenditures, and primary care physician expenditures. Although expenditures for acute care were not significantly lower, the dually eligible beneficiaries assigned to MiPCT practices did have a lower rate of inpatient admissions.

Table 10-20
Michigan: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among dually eligible Medicare beneficiaries: Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs	
	Average estimate	90% confidence interval
Total Medicare expenditures		
Year One (N = 34,894)	-26.58	[-98.45, 45.29]
Year Two (N = 35,982)	-56.47	[-127.36, 14.42]
Year Three (N = 34,998)	-102.24*	[-171.07, -33.40]
Overall (N = 48,054)	-61.97*	[-122.39, -1.56]
Overall Aggregate	-\$63,904,408*	
Acute-care expenditures		
Year One (N = 34,894)	-6.56	[-37.70, 24.58]
Year Two (N = 35,982)	-16.99	[-46.67, 12.69]
Year Three (N = 34,998)	-41.36	[-85.74, 3.01]
Overall (N = 48,054)	-21.71	[-50.51, 7.09]
Overall Aggregate	-\$22,386,183	

(continued)

Table 10-20 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for selected
expenditure and utilization measures among dually eligible Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs	
	Average estimate	90% confidence interval
ER visits not leading to hospitalization expenditures		
Year One (N = 34,894)	-1.01	[-4.00, 1.98]
Year Two (N = 35,982)	-2.34	[-5.49, 0.82]
Year Three (N = 34,998)	-6.31*	[-11.15, -1.46]
Overall (N = 48,054)	-3.23*	[-6.08, -0.37]
Overall Aggregate	-\$3,327,903*	
Specialty physician expenditures		
Year One (N = 34,894)	-8.82*	[-16.14, -1.50]
Year Two (N = 35,982)	-11.41*	[-18.52, -4.30]
Year Three (N = 34,998)	-12.46*	[-19.12, -5.80]
Overall (N = 48,054)	-10.92*	[-17.05, -4.79]
Overall Aggregate	-\$11,257,377*	
Primary care physician expenditures		
Year One (N = 34,894)	-0.69	[-4.61, 3.23]
Year Two (N = 35,982)	-4.15*	[-7.87, -0.43]
Year Three (N = 34,998)	-6.38*	[-11.15, -1.62]
Overall (N = 48,054)	-3.76*	[-7.48, -0.05]
Overall Aggregate	-\$3,882,164*	
All-cause admissions		
Year One (N = 34,894)	-7.57*	[-13.07, -2.08]
Year Two (N = 35,982)	-6.91*	[-12.58, -1.24]
Year Three (N = 34,998)	-4.53	[-11.83, 2.78]
Overall (N = 48,054)	-6.33*	[-11.46, -1.20]
Overall Aggregate	-2,177*	
ER visits not leading to a hospitalization		
Year One (N = 34,894)	4.17	[-8.13, 16.46]
Year Two (N = 35,982)	-0.42	[-12.77, 11.93]
Year Three (N = 34,998)	-2.87	[-14.63, 8.90]
Overall (N = 48,054)	0.26	[-9.76, 10.28]
Overall Aggregate	89	

(continued)

Table 10-20 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among dually eligible Medicare beneficiaries: Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs	
	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 6,342)	-28.80	[-62.11, 4.52]
Year Two (N = 6,353)	15.27	[-18.25, 48.80]
Year Three (N = 5,027)	-45.84*	[-81.03, -10.65]
Overall (N = 13,415)	-17.50	[-41.39, 6.39]
Overall Aggregate	-6,016	

NOTES:

- Total Medicare expenditures and expenditures for acute care, ER visits not leading to hospitalization, primary care physicians and specialty physicians are PBPM expenditures.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments or utilization relative to the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Specifically, **Table 10-20** shows the following:

- Among dually eligible Medicare beneficiaries, the growth in **overall aggregate expenditures for ER visits not leading to a hospitalization** was \$3.3 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among dually eligible Medicare beneficiaries, the growth in **overall aggregate specialty physician expenditures** was \$11.3 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.

- Among dually eligible Medicare beneficiaries, the growth in *overall aggregate primary care physician expenditures* was \$3.9 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among dually eligible Medicare beneficiaries, **all-cause admissions** decreased by an *overall aggregate* of 2,177 admissions among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant overall results were observed among dually eligible Medicare beneficiaries assigned to MiPCT practices for the overall measures of acute-care expenditures, the number of ER visits not leading to hospitalization, and 30-day unplanned readmissions.

Beneficiaries with Multiple Chronic Conditions

For Medicare beneficiaries, the multiple chronic condition group is defined as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS-HCC high-risk category. Additional details about the chronic conditions and the CMS-HCC risk category can be found in **Appendix D**. Over the course of the demonstration, 23 percent of MAPCP Demonstration Medicare beneficiaries (demonstration and CG beneficiaries) fit this profile in Michigan. For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into the MAPCP Demonstration (or CG). Over the course of the demonstration, 28 percent of adult MAPCP Demonstration Medicaid beneficiaries (demonstration and CG beneficiaries) fit this profile. Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

MiPCT was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality of care and health outcomes measures between MiPCT and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 10-21** reports on changes in six process of care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process of care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 10-22** reports on changes in six process of care measures among adult Medicaid beneficiaries with multiple chronic conditions and diabetes. Additional process of care measures examined specifically for the adult Medicaid population with multiple chronic conditions include breast cancer screening, cervical cancer screening, appropriate use of antidepressant medications, and appropriate use of asthma medications.
- **Table 10-23** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See *Section 10.3.2* for further discussion of the interpretation of these measures.

Table 10-21
Michigan: Comparison of average MAPCP Demonstration effect estimates for process of
care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 15,599)	-0.93	[-3.50, 1.64]	0.37	[-1.21, 1.94]
Year Two (N = 9,886)	-1.98	[-4.64, 0.68]	0.54	[-1.39, 2.47]
Year Three (N = 5,729)	-2.95	[-6.84, 0.93]	0.76	[-3.77, 5.29]
Overall (N = 16,342)	-1.64	[-4.13, 0.86]	0.49	[-1.21, 2.20]
Retinal eye examination				
Year One (N = 15,599)	-0.23	[-2.44, 1.99]	-0.87	[-3.60, 1.86]
Year Two (N = 9,886)	1.15	[-2.53, 4.84]	-0.96	[-4.81, 2.88]
Year Three (N = 5,729)	-4.19*	[-8.06, -0.33]	-5.69	[-11.77, 0.39]
Overall (N = 16,342)	-0.52	[-2.68, 1.65]	-1.78	[-4.69, 1.13]
LDL-C screening				
Year One (N = 15,599)	-2.06	[-4.64, 0.52]	-3.02*	[-5.76, -0.29]
Year Two (N = 9,886)	-1.61	[-4.85, 1.64]	-0.89	[-4.98, 3.20]
Year Three (N = 5,729)	-1.75	[-6.74, 3.24]	-3.44	[-7.62, 0.73]
Overall (N = 16,342)	-1.86	[-4.46, 0.74]	-2.43	[-5.35, 0.50]
Medical attention for nephropathy				
Year One (N = 15,599)	-2.38	[-4.88, 0.11]	-1.70	[-3.84, 0.45]
Year Two (N = 9,886)	-0.16	[-4.33, 4.01]	-1.31	[-3.86, 1.23]
Year Three (N = 5,729)	-1.46	[-6.27, 3.35]	-4.44*	[-7.57, -1.30]
Overall (N = 16,342)	-1.51	[-4.54, 1.52]	-2.08*	[-4.03, -0.12]
Received all 4 diabetes tests				
Year One (N = 15,599)	-0.99	[-4.35, 2.38]	-2.07	[-6.34, 2.20]
Year Two (N = 9,886)	2.17	[-2.92, 7.27]	-2.82	[-7.27, 1.64]
Year Three (N = 5,729)	-2.20	[-8.38, 3.97]	-9.85*	[-16.00, -3.70]
Overall (N = 16,342)	-0.21	[-4.18, 3.76]	-3.73	[-7.53, 0.06]
Received none of the 4 diabetes tests				
Year One (N = 15,599)	0.39	[-0.28, 1.06]	-0.11	[-0.79, 0.56]
Year Two (N = 9,886)	0.78*	[0.05, 1.52]	-0.46	[-1.53, 0.60]
Year Three (N = 5,729)	1.07*	[0.39, 1.75]	0.50	[-0.54, 1.54]
Overall (N = 16,342)	0.64*	[0.13, 1.15]	-0.11	[-0.64, 0.42]

(continued)

Table 10-21 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for process of care indicators among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total lipid panel				
Year One (N = 34,106)	-1.06	[-4.09, 1.97]	-2.26*	[-4.39, -0.14]
Year Two (N = 22,242)	0.22	[-4.98, 5.41]	-1.29	[-4.66, 2.07]
Year Three (N = 13,392)	-4.34	[-10.99, 2.31]	-6.33*	[-10.83, -1.83]
Overall (N = 37,953)	-1.29	[-5.52, 2.95]	-2.74*	[-5.14, -0.33]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions who have diabetes, we found some evidence that MiPCT decreased the likelihood of complying with some process of care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 10-21** shows the following:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **medical attention for nephropathy** or a **total lipid panel** decreased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.
- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **none of the four diabetes tests** increased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, LDL-C screening, retinal eye examinations, and receipt of all four diabetes tests.

Table 10-22
Michigan: Comparison of average MAPCP Demonstration effect estimates for process of
care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing					
Year One	5,552	12.64*	[1.50, 23.79]	1.56	[-6.33, 9.45]
Year Two	3,774	19.48*	[7.03, 31.93]	10.38	[-0.46, 21.23]
Year Three	2,746	12.97*	[3.29, 22.66]	6.17	[-6.10, 18.44]
Overall	6,440	14.85*	[3.84, 25.87]	5.37	[-4.13, 14.87]
Retinal eye examination					
Year One	5,552	-3.99	[-9.34, 1.36]	-2.92	[-7.97, 2.13]
Year Two	3,774	-1.39	[-4.68, 1.90]	-5.01*	[-9.72, -0.30]
Year Three	2,746	-1.12	[-4.74, 2.50]	-5.28	[-11.61, 1.06]
Overall	6,440	-2.52	[-5.08, 0.03]	-4.11*	[-7.40, -0.82]
LDL-C screening					
Year One	5,552	11.60*	[1.63, 21.56]	2.03	[-4.87, 8.92]
Year Two	3,774	14.11*	[2.66, 25.55]	8.00*	[0.72, 15.27]
Year Three	2,746	5.63	[-1.85, 13.10]	7.48*	[1.03, 13.94]
Overall	6,440	11.02*	[1.48, 20.57]	5.13	[-1.36, 11.63]
Medical attention for nephropathy					
Year One	5,552	5.55	[-1.32, 12.42]	6.77*	[1.50, 12.04]
Year Two	3,774	6.71	[-0.69, 14.11]	5.94*	[0.18, 11.71]
Year Three	2,746	4.53	[-0.90, 9.97]	3.49	[-2.61, 9.59]
Overall	6,440	5.68	[-0.70, 12.06]	5.76*	[0.62, 10.91]
Received all 4 diabetes tests					
Year One	5,552	4.64	[-0.86, 10.14]	-0.41	[-3.54, 2.72]
Year Two	3,774	6.65	[-0.29, 13.59]	1.76	[-1.77, 5.29]
Year Three	2,746	4.04	[-0.60, 8.68]	1.65	[-1.39, 4.69]
Overall	6,440	5.13	[-0.45, 10.71]	0.74	[-2.02, 3.50]
Received none of the 4 diabetes tests					
Year One	5,552	-3.13	[-6.68, 0.42]	-1.51	[-5.91, 2.88]
Year Two	3,774	-9.83*	[-15.41, -4.24]	-2.35	[-8.69, 3.98]
Year Three	2,746	-5.61	[-11.97, 0.75]	-1.14	[-7.63, 5.35]
Overall	6,440	-5.79*	[-10.18, -1.39]	-1.69	[-6.80, 3.42]
Breast cancer screening					
Year One	9,250	-1.30	[-5.81, 3.22]	1.38	[-1.98, 4.74]
Year Two	6,488	-1.17	[-3.22, 0.88]	1.68	[-1.02, 4.38]
Year Three	5,484	1.22	[-0.46, 2.90]	-1.85	[-4.59, 0.89]
Overall	10,180	-0.61	[-3.01, 1.79]	0.64	[-1.78, 3.06]

(continued)

Table 10-22 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for process of
care indicators among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Cervical cancer screening					
Year One	18,524	1.75	[-0.92, 4.43]	-0.27	[-1.80, 1.26]
Year Two	11,840	2.34	[-1.22, 5.90]	-1.09	[-2.99, 0.82]
Year Three	9,599	0.00	[-0.90, 0.89]	-3.06*	[-4.74, -1.37]
Overall	20,251	1.51	[-0.76, 3.77]	-1.18	[-2.41, 0.05]
Antidepressant medication management: 12 weeks					
Year One	2,947	-2.07	[-6.37, 2.22]	3.38	[-4.94, 11.69]
Year Two	1,441	6.30	[-1.60, 14.20]	-0.64	[-7.53, 6.25]
Year Three	0,760	-1.79	[-8.98, 5.40]	-4.55	[-10.53, 1.42]
Overall	4,255	0.31	[-3.19, 3.81]	1.08	[-3.25, 5.41]
Antidepressant medication management: 6 months					
Year One	2,947	-0.78	[-6.04, 4.48]	-1.84	[-10.45, 6.76]
Year Two	1,441	5.92	[-0.85, 12.68]	1.22	[-5.08, 7.53]
Year Three	0,760	-0.99	[-7.42, 5.45]	-10.68*	[-16.82, -4.54]
Overall	4,255	1.06	[-3.99, 6.11]	-2.29	[-7.75, 3.17]
Appropriate use of asthma medications					
Year One	1,509	1.40	[-5.76, 8.56]	-2.79	[-8.55, 2.96]
Year Two	1,015	3.11	[-1.66, 7.88]	-2.16	[-6.12, 1.80]
Year Three	0,634	0.83	[-10.41, 12.06]	-7.72*	[-14.75, -0.69]
Overall	2,259	1.83	[-4.41, 8.08]	-3.58	[-8.26, 1.10]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique MiPCT Medicaid participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT Practices = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For adult Medicaid beneficiaries with multiple chronic conditions, we found some evidence that MiPCT impacted process of care measures, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 10-22** shows the following:

- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **HbA1c testing** and **LDL-C screening** increased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.
- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of **medical attention for nephropathy** increased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.
- Among adult Medicaid beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of a **retinal eye examination** decreased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.
- Although the *overall* estimate was not statistically significant, positive estimates in Years Two and Three suggested a potential trend toward an increased likelihood of **LDL-C screening** among adult Medicaid MiPCT beneficiaries who have diabetes and multiple chronic conditions compared with adult Medicaid beneficiaries who have diabetes and multiple chronic conditions assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed for receipt of all four diabetes tests, receipt of none of the diabetes tests, breast cancer screening, cervical cancer screening, and the appropriate use of medications.

Table 10-23
Michigan: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 54,950)	-0.49	[-3.06, 2.08]	-1.13	[-3.36, 1.11]
Year Two (N = 50,767)	-1.19	[-4.47, 2.09]	-4.36*	[-7.90, -0.81]
Year Three (N = 42,771)	-0.18	[-2.72, 2.37]	3.30	[-0.12, 6.71]
Overall (N = 66,610)	-0.64	[-3.12, 1.85]	-0.92	[-3.49, 1.64]
PQI admissions—overall ²				
Year One (N = 54,950)	-1.47	[-5.46, 2.52]	0.92	[-2.41, 4.25]
Year Two (N = 50,767)	-0.50	[-4.37, 3.37]	-1.44	[-5.31, 2.43]
Year Three (N = 42,771)	2.28	[-0.87, 5.43]	-1.21	[-6.01, 3.59]
Overall (N = 66,610)	-0.04	[-3.16, 3.08]	-0.50	[-3.78, 2.78]

(continued)

Table 10-23 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—acute ³				
Year One (N = 54,950)	-1.96	[-4.75, 0.83]	-0.78	[-2.19, 0.64]
Year Two (N = 50,767)	-0.93	[-3.36, 1.51]	-0.54	[-2.19, 1.12]
Year Three (N = 42,771)	-0.66	[-2.38, 1.07]	-4.01*	[-6.82, -1.20]
Overall (N = 66,610)	-1.23	[-3.18, 0.72]	-1.64*	[-3.06, -0.22]
PQI admissions—chronic ⁴				
Year One (N = 54,950)	0.45	[-1.93, 2.83]	1.62	[-1.00, 4.24]
Year Two (N = 50,767)	0.49	[-2.41, 3.38]	-0.77	[-3.74, 2.21]
Year Three (N = 42,771)	2.85*	[0.67, 5.03]	2.37	[-0.48, 5.22]
Overall (N = 66,610)	1.17	[-0.91, 3.25]	1.03	[-1.33, 3.40]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries with multiple chronic conditions, we found some evidence that MiPCT decreased the rate of acute PQI admissions, though statistical significance was not seen across both CGs. Specifically, **Table 10-23** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **acute PQI admissions** decreased among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH comparison practices only.

No statistically significant *overall* changes were observed in the measures of avoidable catastrophic events, overall PQI admissions, or acute PQI admissions.

MiPCT is expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access to care and care coordination measures between MiPCT and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 10-24** reports on changes in seven access to care and care coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COC Index.
- **Table 10-25** reports on changes in five access to care and care coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 10.4.2** for further discussion of the interpretation of these measures.

Table 10-24
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 54,950)	100.06*	[29.81, 170.31]	48.18	[-2.44, 98.79]
Year Two (N = 50,767)	3.79	[-52.75, 60.33]	-93.73	[-188.20, 0.74]
Year Three (N = 42,771)	-32.47	[-94.09, 29.15]	-80.40	[-175.40, 14.61]
Overall (N = 66,610)	28.61	[-24.82, 82.03]	-37.57	[-102.01, 26.87]

(continued)

Table 10-24 (continued)
**Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:**
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 54,950)	36.08	[-19.05, 91.21]	27.50	[-21.52, 76.52]
Year Two (N = 50,767)	-74.34*	[-143.65, -5.04]	-64.15	[-130.38, 2.08]
Year Three (N = 42,771)	-69.00	[-144.32, 6.32]	-122.78	[-270.23, 24.67]
Overall (N = 66,610)	-32.12	[-95.95, 31.71]	-47.59	[-124.69, 29.51]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 54,950)	-0.10	[-12.84, 12.63]	12.74	[-3.15, 28.64]
Year Two (N = 50,767)	-0.58	[-17.32, 16.17]	13.13	[-3.83, 30.08]
Year Three (N = 42,771)	-1.20	[-22.47, 20.06]	9.25	[-12.83, 31.34]
Overall (N = 66,610)	-0.59	[-15.98, 14.81]	11.85	[-4.03, 27.73]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 57,501)				
1st quintile	-0.84	[-2.82, 1.15]	0.76	[-0.67, 2.20]
5th Quintile	0.75	[-0.98, 2.49]	-0.73	[-2.15, 0.68]
Year Two (N = 38,539)				
1st quintile	-0.83	[-2.21, 0.56]	0.46	[-1.96, 2.88]
5th quintile	0.72	[-0.46, 1.89]	-0.42	[-2.66, 1.83]
Year Three (N = 26,033)				
1st quintile	0.14	[-1.82, 2.11]	0.39	[-3.34, 4.13]
5th quintile	-0.13	[-1.96, 1.69]	-0.36	[-3.89, 3.16]
Overall (N = 59,736)				
1st quintile	-0.62	[-2.11, 0.87]	0.59	[-1.29, 2.47]
5th quintile	0.55	[-0.76, 1.86]	-0.55	[-2.34, 1.23]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 15,175)	21.09	[-8.85, 51.04]	38.74*	[8.08, 69.41]
Year Two (N = 12,989)	12.95	[-17.39, 43.28]	34.11	[-5.59, 73.81]
Year Three (N = 8,853)	59.93*	[19.78, 100.08]	-26.50	[-70.45, 17.46]
Overall (N = 27,639)	27.04*	[2.79, 51.29]	22.28	[-7.62, 52.18]
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 18,333)	-59.53*	[-99.17, -19.89]	-23.22*	[-45.37, -1.06]
Year Two (N = 15,839)	-16.83	[-52.56, 18.89]	18.87	[-3.00, 40.74]
Year Three (N = 11,059)	-3.09	[-35.68, 29.49]	21.99	[-11.55, 55.52]
Overall (N = 32,679)	-31.32	[-64.18, 1.53]	2.17	[-18.26, 22.60]

(continued)

Table 10-24 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries with
multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
COC Index (higher quintile = better continuity of care)				
Year One (N = 63,916)				
1st quintile	0.78	[-0.60, 2.16]	-0.79	[-2.14, 0.57]
5th Quintile	-0.89	[-2.53, 0.74]	0.85	[-0.57, 2.27]
Year Two (N = 43,689)				
1st quintile	-0.20	[-2.18, 1.78]	-1.25	[-2.74, 0.24]
5th quintile	0.24	[-2.06, 2.53]	1.40	[-0.21, 3.02]
Year Three (N = 29,472)				
1st quintile	-2.91	[-6.59, 0.76]	-0.28	[-3.21, 2.66]
5th quintile	2.81	[-0.39, 6.01]	0.29	[-2.80, 3.39]
COC Index (higher quintile = better continuity of care) (continued)				
Overall (N = 65,004)				
1st quintile	-0.33	[-1.97, 1.31]	-0.83	[-2.06, 0.41]
5th quintile	0.26	[-1.48, 2.01]	0.91	[-0.41, 2.22]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).

CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that MiPCT impacted the access to care and care coordination measures, with the exception of follow-up visits within 14 days after discharge. Specifically, **Table 10-24** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **follow-up visits within 14 days after discharge** increased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits, primary care visits as a percentage of total visits, 30-day unplanned readmissions, and continuity of care.

Table 10-25
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicaid beneficiaries with
multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	23,586	-5.07*	[-7.82, -2.32]	-1.94	[-4.96, 1.08]
Year Two	25,545	-2.84*	[-5.31, -0.37]	0.33	[-2.89, 3.54]
Year Three	27,519	-6.83*	[-10.38, -3.29]	-3.17	[-6.52, 0.18]
Overall	41,716	-4.82*	[-7.44, -2.20]	-1.51	[-4.34, 1.32]
Medical specialist visits					
Year One	23,586	2.34*	[0.92, 3.76]	0.04	[-1.42, 1.51]
Year Two	25,545	-0.06	[-1.59, 1.48]	-1.16	[-2.95, 0.62]
Year Three	27,519	0.33	[-1.35, 2.01]	-0.82	[-2.63, 0.99]
Overall	41,716	0.86	[-0.48, 2.21]	-0.66	[-2.16, 0.85]
Surgical specialist visits					
Year One	23,586	-1.04	[-2.15, 0.08]	0.87	[-0.53, 2.27]
Year Two	25,545	-0.76	[-2.04, 0.51]	1.09	[-0.58, 2.77]
Year Three	27,519	-1.70*	[-2.97, -0.44]	1.14	[-0.50, 2.77]
Overall	41,716	-1.15*	[-2.28, -0.02]	1.03	[-0.50, 2.56]
Primary care visits as percentage of total visits (% PC)					
Year One					
% PC < 70%	16,363	3.87*	[1.62, 6.12]	2.36	[-0.50, 5.23]
70% ≤ % PC < 100%		-0.20	[-0.44, 0.04]	-0.20	[-0.44, 0.04]
% PC = 100%		-3.67*	[-5.84, -1.50]	-2.16	[-4.85, 0.53]
Year Two					
% PC < 70%	7,628	3.52	[-0.31, 7.36]	0.27	[-5.28, 5.82]
70% ≤ % PC < 100%		0.26	[-0.19, 0.70]	0.00	[-0.09, 0.10]
% PC = 100%		-3.78	[-7.95, 0.39]	-0.27	[-5.92, 5.37]
Year Three					
% PC < 70%	6,446	1.65	[-5.19, 8.50]	1.59	[-4.14, 7.32]
70% ≤ % PC < 100%		0.26	[-1.00, 1.51]	0.24	[-0.73, 1.20]
% PC = 100%		-1.91	[-10.00, 6.17]	-1.83	[-8.51, 4.86]
Overall					
% PC < 70%	18,362	3.31*	[0.12, 6.51]	1.67	[-1.86, 5.21]
70% ≤ % PC < 100%		0.01	[-0.38, 0.40]	-0.06	[-0.28, 0.16]
% PC = 100%		-3.32	[-6.81, 0.16]	-1.62	[-5.24, 2.01]

(continued)

Table 10-25 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions					
Year One	2,949	0.20	[-1.21, 1.61]	-1.17	[-3.31, 0.97]
Year Two	3,397	-0.37	[-1.97, 1.22]	-1.23	[-3.29, 0.83]
Year Three	1,977	0.15	[-1.90, 2.20]	-0.36	[-3.31, 2.58]
Overall	6,933	-0.05	[-1.23, 1.12]	-1.02	[-2.89, 0.85]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique MiPCT Medicaid participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the rate of events among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found little evidence that MiPCT impacted the access to care and care coordination measures, with the exception of primary care and surgical specialist visits. Specifically, **Table 10-25** shows the following:

- Among Medicaid beneficiaries with multiple chronic conditions, the *overall* likelihood of having **primary care visits** and **surgical specialist visits** decreased among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for the measures of medical specialist visits, primary care visits as a percentage of total visits, and 30-day unplanned readmissions.

MiPCT is expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between MiPCT and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 10-26** reports on changes in total Medicare expenditures and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 10-27** reports on changes in all-cause admissions and all-cause ER visits among Medicare beneficiaries with multiple chronic conditions.
- **Table 10-28** reports on changes in all-cause admissions and all-cause ER visits among Medicaid beneficiaries with multiple chronic conditions.

See **Section 10.6.2** for further discussion of the interpretation of these measures.

Table 10-26
Michigan: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 54,950)	-38.78	[-124.92, 47.36]	-22.66	[-111.34, 66.01]
Year Two (N = 50,767)	-216.55*	[-310.73, -122.37]	-238.04*	[-409.12, -66.96]
Year Three (N = 42,771)	-106.81*	[-191.62, -22.00]	-151.48*	[-287.10, -15.85]
Overall (N = 66,610)	-118.93*	[-195.40, -42.46]	-133.37*	[-251.29, -15.45]
Overall Aggregate	-\$175,211,800*		-\$196,482,066*	
Acute-care				
Year One (N = 54,950)	-36.25	[-82.19, 9.68]	-26.75	[-80.33, 26.83]
Year Two (N = 50,767)	-96.82*	[-148.56, -45.07]	-104.79*	[-185.07, -24.51]
Year Three (N = 42,771)	-39.38	[-87.90, 9.14]	-78.36*	[-146.45, -10.26]
Overall (N = 66,610)	-57.68*	[-98.07, -17.29]	-68.31*	[-127.08, -9.53]
Overall Aggregate	-\$84,979,557*		-\$100,630,908*	

(continued)

Table 10-26 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Post-acute-care				
Year One (N = 54,950)	-16.15	[-36.80, 4.50]	-29.81	[-60.77, 1.15]
Year Two (N = 50,767)	-51.91*	[-73.18, -30.64]	-91.73*	[-148.45, -35.01]
Year Three (N = 42,771)	-19.84*	[-37.73, -1.96]	-5.22	[-37.03, 26.58]
Overall (N = 66,610)	-29.34*	[-45.43, -13.26]	-43.58*	[-75.93, -11.23]
Overall Aggregate	-\$43,231,544*		-\$64,202,348*	
ER visits not leading to hospitalization				
Year One (N = 54,950)	0.53	[-3.32, 4.38]	2.78	[-0.29, 5.86]
Year Two (N = 50,767)	-3.17	[-6.97, 0.63]	-2.22	[-5.60, 1.16]
Year Three (N = 42,771)	-4.67	[-10.46, 1.12]	-2.42	[-8.13, 3.28]
Overall (N = 66,610)	-2.25	[-5.72, 1.23]	-0.44	[-3.68, 2.81]
Overall Aggregate	-\$3,311,953		-\$641,997	
Outpatient				
Year One (N = 54,950)	11.32	[-8.72, 31.37]	28.97*	[7.67, 50.26]
Year Two (N = 50,767)	-17.04	[-44.59, 10.51]	16.64*	[0.40, 32.87]
Year Three (N = 42,771)	-5.22	[-30.50, 20.06]	15.74	[-11.73, 43.22]
Overall (N = 66,610)	-3.13	[-25.20, 18.93]	20.91*	[2.22, 39.61]
Overall Aggregate	-\$4,612,979		\$30,811,358*	
Specialty physician				
Year One (N = 54,950)	-18.09*	[-35.76, -0.41]	-12.32	[-25.33, 0.70]
Year Two (N = 50,767)	-37.21*	[-53.09, -21.33]	-30.74*	[-47.26, -14.21]
Year Three (N = 42,771)	-22.06*	[-37.82, -6.30]	-33.97*	[-55.43, -12.52]
Overall (N = 66,610)	-25.73*	[-40.80, -10.65]	-24.90*	[-39.78, -10.03]
Overall Aggregate	-\$37,904,356*		-\$36,688,342*	
Primary care physician				
Year One (N = 54,950)	-1.01	[-5.96, 3.94]	-3.09	[-9.05, 2.88]
Year Two (N = 50,767)	-9.64*	[-14.08, -5.21]	-18.61*	[-34.53, -2.70]
Year Three (N = 42,771)	-7.25*	[-12.62, -1.87]	-10.13*	[-18.28, -1.98]
Overall (N = 66,610)	-5.76*	[-9.65, -1.87]	-10.41*	[-19.37, -1.45]
Overall Aggregate	-\$8,490,225*		-\$15,334,450*	
Home health				
Year One (N = 54,950)	9.87*	[1.44, 18.31]	11.07*	[3.57, 18.56]
Year Two (N = 50,767)	-5.64	[-13.62, 2.35]	-2.30	[-10.41, 5.81]
Year Three (N = 42,771)	-6.97	[-20.61, 6.68]	-9.86	[-23.09, 3.37]
Overall (N = 66,610)	-0.32	[-8.17, 7.54]	0.41	[-7.54, 8.35]
Overall Aggregate	-\$464,313		\$597,205	

(continued)

Table 10-26 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other non-facility				
Year One (N = 54,950)	-0.44	[-4.81, 3.93]	-0.49	[-3.58, 2.60]
Year Two (N = 50,767)	-0.26	[-6.51, 5.98]	-4.69	[-9.81, 0.42]
Year Three (N = 42,771)	1.48	[-2.65, 5.61]	-6.33	[-14.87, 2.21]
Overall (N = 66,610)	0.18	[-4.33, 4.70]	-3.63	[-8.24, 0.99]
Overall Aggregate	\$269,363		-\$5,342,054	
Laboratory				
Year One (N = 54,950)	-1.86	[-4.07, 0.35]	-2.01*	[-3.68, -0.34]
Year Two (N = 50,767)	-3.89*	[-6.59, -1.18]	-4.21*	[-6.82, -1.60]
Year Three (N = 42,771)	-6.19*	[-10.88, -1.50]	-4.98*	[-9.73, -0.23]
Overall (N = 66,610)	-3.82*	[-6.32, -1.31]	-3.62*	[-6.33, -0.92]
Overall Aggregate	-\$5,622,838*		-\$5,339,611*	
Imaging				
Year One (N = 54,950)	-1.14	[-2.81, 0.53]	0.08	[-1.53, 1.69]
Year Two (N = 50,767)	-2.90*	[-4.65, -1.15]	-1.75	[-3.72, 0.22]
Year Three (N = 42,771)	0.44	[-2.28, 3.15]	-1.12	[-4.14, 1.90]
Overall (N = 66,610)	-1.27	[-3.04, 0.49]	-0.89	[-2.80, 1.01]
Overall Aggregate	-\$1,877,552		-\$1,313,674	
Other facility				
Year One (N = 54,950)	0.27	[-0.16, 0.69]	0.34*	[0.01, 0.66]
Year Two (N = 50,767)	0.04	[-0.72, 0.81]	0.31	[-0.08, 0.70]
Year Three (N = 42,771)	0.55*	[0.03, 1.08]	0.23*	[0.01, 0.45]
Overall (N = 66,610)	0.28	[-0.15, 0.71]	0.30*	[0.01, 0.58]
Overall Aggregate	\$406,898		\$438,724*	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence of lower expenditure growth in many of the expenditure categories, including total Medicare expenditures, for MiPCT beneficiaries. The decrease in total Medicare expenditures may have been driven by reductions in expenditure growth in several areas, including acute-care and post-acute-care expenditures. Specifically, **Table 10-26** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **acute-care expenditures** was \$85 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices and \$100.6 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **post-acute-care expenditures** was \$43.2 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices and \$64.2 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **specialty physician expenditures** was \$37.9 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices and \$36.7 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **primary care physician expenditures** was \$8.5 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices and \$15.3 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **laboratory expenditures** was \$5.6 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices and \$5.3 million lower compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **outpatient expenditures** was \$30.8 million greater for MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate* **other facility expenditures** was approximately \$439,000 greater for MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for ER visits not leading to hospitalization, home health, other non-facility, and imaging expenditures.

Table 10-27
Michigan: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 54,950)	-7.85	[-18.94, 3.23]	-1.41	[-13.80, 10.97]
Year Two (N = 50,767)	-13.86*	[-25.48, -2.23]	-11.08	[-25.43, 3.27]
Year Three (N = 42,771)	-11.05	[-24.68, 2.58]	-5.37	[-21.92, 11.18]
Overall (N = 66,610)	-10.82	[-21.90, 0.25]	-5.85	[-18.75, 7.06]
Overall Aggregate	-5,316		-2,871	
ER visits not leading to hospitalization				
Year One (N = 54,950)	13.68*	[3.12, 24.23]	13.59*	[2.07, 25.12]
Year Two (N = 50,767)	4.73	[-7.24, 16.71]	0.98	[-11.33, 13.28]
Year Three (N = 42,771)	4.47	[-13.16, 22.09]	7.41	[-6.39, 21.21]
Overall (N = 66,610)	7.95	[-3.36, 19.26]	7.51	[-3.40, 18.42]
Overall Aggregate	3,903		3,687	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found no evidence that MiPCT practices changed the utilization. Specifically, **Table 10-27** shows that no statistically significant *overall* impacts were observed among beneficiaries with multiple chronic conditions for all-cause admissions and ER visits not leading to a hospitalization.

Table 10-28
Michigan: Comparison of average MAPCP Demonstration effect estimates for utilization
among Medicaid beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Adults				
	N	MiPCT Practices vs. CG PCMHs		MiPCT Practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	23,586	0.36	[-0.05, 0.76]	0.91*	[0.53, 1.29]
Year Two	25,545	0.27	[-0.13, 0.67]	0.82*	[0.41, 1.22]
Year Three	27,519	-1.28*	[-1.74, -0.83]	-0.83*	[-1.30, -0.37]
Overall	41,716	-0.18	[-0.51, 0.14]	0.34*	[0.04, 0.63]
Overall Aggregate		-363		668*	
ER visits not leading to hospitalization					
Year One	23,586	1.31	[-0.04, 2.65]	1.71*	[0.78, 2.63]
Year Two	25,545	0.82	[-0.81, 2.45]	2.07*	[1.19, 2.96]
Year Three	27,519	-0.94	[-2.70, 0.81]	0.79	[-0.52, 2.11]
Overall	41,716	0.44	[-1.05, 1.92]	1.55*	[0.75, 2.36]
Overall Aggregate		865		3,084*	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique MiPCT Medicaid participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter divided by total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined because of the relatively low prevalence of multiple chronic conditions among children.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice;
MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found some evidence that MiPCT practices increased utilization particularly when compared with the non-PCMH CG. Specifically, **Table 10-28** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 668 among Medicaid adult beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.

- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 3,084 among Medicaid adult beneficiaries assigned to MiPCT practices compared with beneficiaries assigned to non-PCMH practices.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Within the PCMH, significant care management resources may be required to meet the needs of these patients. There were no targeted interventions implemented under MiPCT to improve utilization of health services and quality of care specifically for individuals with mental illness and substance abuse disorders. These individuals were expected, however, to benefit from the initiatives to improve access to, coordination of, and continuity of care between primary care and behavioral health providers. Improved access and care coordination may increase the use of outpatient behavioral health services and primary care visits, and, in turn, more appropriate use of outpatient care may lead to decreases in rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically).

On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, Michigan's MiPCT practices earned a weighted score of 44 out of 100 on a multiquestion composite scale that measures the degree to which practices ask about behavioral health issues (*Figure 10-2*). This composite reflects that

- 50 percent of respondents said their practice staff asked if they felt depressed,
- 45 percent reported that practice staff talked to them about things in their lives that worried or stressed them, and
- 32 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

Given the potential impact on both nonbehavioral health and behavioral service use, we further explored the association between the demonstration and changes for Medicare and Medicaid beneficiaries with behavioral health conditions. For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in the demonstration. Using this criterion, 14 percent of the Medicare study sample (demonstration and CG beneficiaries), 4 percent of the adult Medicaid study sample, and 2 percent of the pediatric Medicaid study sample were identified as having a behavioral health condition.

- **Table 10-29** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder

(hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.

- **Table 10-30** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 10-31** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions: all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 10.6.2** for further discussion of the interpretation of these measures.

Table 10-29
Michigan: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 30,485)	19.54	[-48.30, 87.37]	-2.40	[-77.13, 72.33]
Year Two (N = 29,875)	-42.30	[-109.38, 24.78]	-135.90*	[-247.85, -23.95]
Year Three (N = 26,906)	-131.22*	[-207.46, -54.99]	-22.97	[-134.76, 88.82]
Overall (N = 39,822)	-49.07	[-100.77, 2.63]	-54.26	[-137.85, 29.33]
Overall Aggregate	-\$41,979,771		-\$46,422,948	
Acute-care				
Year One (N = 30,485)	-21.47	[-57.64, 14.70]	-20.03	[-56.59, 16.54]
Year Two (N = 29,875)	-25.16	[-66.21, 15.89]	-48.89*	[-96.25, -1.54]
Year Three (N = 26,906)	-63.79*	[-120.97, -6.61]	-29.19	[-82.48, 24.09]
Overall (N = 39,822)	-36.08*	[-71.39, -0.77]	-32.73	[-70.31, 4.85]
Overall Aggregate	-\$30,869,577*		-\$28,001,312	
ER visits not leading to hospitalization				
Year One (N = 30,485)	0.05	[-2.67, 2.78]	0.74	[-2.80, 4.29]
Year Two (N = 29,875)	-2.58	[-6.31, 1.14]	-1.17	[-4.44, 2.10]
Year Three (N = 26,906)	-7.49*	[-14.58, -0.41]	6.04*	[0.80, 11.28]
Overall (N = 39,822)	-3.22	[-6.46, 0.01]	1.77	[-1.50, 5.03]
Overall Aggregate	-\$2,758,421		\$1,510,000	

(continued)

Table 10-29 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 30,485)	9.09*	[4.92, 13.26]	4.32	[-0.59, 9.24]
Year Two (N = 29,875)	-0.72	[-5.18, 3.74]	-4.68	[-10.89, 1.53]
Year Three (N = 26,906)	-2.61	[-7.25, 2.02]	1.51	[-4.90, 7.93]
Overall (N = 39,822)	2.06	[-1.16, 5.28]	0.38	[-3.87, 4.63]
Overall Aggregate	\$1,762,859		\$323,675	
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 30,485)	-3.87	[-34.77, 27.03]	-7.69	[-38.65, 23.27]
Year Two (N = 29,875)	-23.83	[-58.28, 10.61]	-32.45	[-73.14, 8.24]
Year Three (N = 26,906)	-34.26	[-84.97, 16.44]	-18.87	[-65.97, 28.23]
Overall (N = 39,822)	-20.25	[-50.73, 10.23]	-19.63	[-52.28, 13.01]
Overall Aggregate	-\$17,323,121		-\$16,796,213	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures relative to the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found little evidence that MiPCT slowed the growth of the selected Medicare expenditure measures, with the exception of reduced growth in acute-care expenditures. However, there were inconsistencies in the statistical significance of this finding across CGs because this effect was only found with reference to the PCMH CG. Specifically, **Table 10-29** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate acute-care expenditures* was \$30.9 million lower for MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.

Although statistical significance was seen in some measures for a single year, no statistically significant overall effects of MiPCT among Medicare beneficiaries with behavioral health conditions were observed for total Medicare expenditures, expenditures for ER visits not leading to a hospitalization, expenditures for total services with a principal diagnosis of a behavioral health condition, or expenditures for total services with a secondary diagnosis of a behavioral health condition. With the exception of lower growth in acute-care expenditures with respect to one of the two CGs, there was no evidence that MiPCT led to statistically significant reductions in any of the selected Medicare expenditure categories for beneficiaries with behavioral health conditions.

Table 10-30
Michigan: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 30,485)	-4.21	[-11.25, 2.83]	-0.89	[-9.45, 7.66]
Year Two (N = 29,875)	-4.61	[-11.01, 1.79]	-5.74	[-14.15, 2.67]
Year Three (N = 26,906)	-12.35*	[-22.59, -2.10]	0.81	[-11.24, 12.87]
Overall (N = 39,822)	-6.92*	[-12.91, -0.93]	-2.00	[-10.46, 6.46]
Overall Aggregate	-1,972*		-571	
ER visits not leading to hospitalization				
Year One (N = 30,485)	12.83*	[0.26, 25.40]	17.11*	[1.10, 33.11]
Year Two (N = 29,875)	0.66	[-12.94, 14.26]	6.10	[-8.29, 20.50]
Year Three (N = 26,906)	-6.12	[-32.92, 20.68]	30.65*	[12.81, 48.49]
Overall (N = 39,822)	2.71	[-11.42, 16.85]	17.64*	[4.21, 31.07]
Overall Aggregate	774		5,031*	
Behavioral health inpatient admissions				
Year One (N = 30,485)	0.19	[-0.52, 0.90]	-0.08	[-0.95, 0.80]
Year Two (N = 29,875)	-0.67	[-1.63, 0.29]	-0.69	[-1.86, 0.48]
Year Three (N = 26,906)	-1.10*	[-2.16, -0.04]	0.72*	[0.08, 1.37]
Overall (N = 39,822)	-0.51	[-1.26, 0.24]	-0.03	[-0.80, 0.74]
Overall Aggregate	-145		-9	
Behavioral health ER visits				
Year One (N = 30,485)	1.72	[-0.80, 4.25]	0.86	[-2.14, 3.87]
Year Two (N = 29,875)	0.56	[-2.31, 3.42]	-1.34	[-4.73, 2.04]
Year Three (N = 26,906)	2.03	[-0.86, 4.93]	3.49*	[1.04, 5.94]
Overall (N = 39,822)	1.43	[-1.03, 3.88]	0.94	[-1.57, 3.46]
Overall Aggregate	406		269	

(continued)

Table 10-30 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicare beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits				
Year One (N = 30,485)	28.12	[-15.37, 71.61]	42.20	[-8.65, 93.05]
Year Two (N = 29,875)	24.69	[-24.66, 74.04]	35.04	[-31.30, 101.39]
Year Three (N = 26,906)	6.90	[-56.64, 70.44]	-12.13	[-137.82, 113.56]
Overall (N = 39,822)	20.25	[-26.87, 67.38]	22.62	[-54.09, 99.32]
Overall Aggregate	5,776		6,449	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique MiPCT Medicare participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration Medicare beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found little evidence that MiPCT reduced the rate of the selected Medicare utilization measures, with the exception of a reduced rate of all-cause inpatient admissions. However, there were inconsistencies in the statistical significance of this finding across CGs because this effect was only found with reference to the PCMH CG. Specifically, **Table 10-30** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, **all-cause inpatient admissions** decreased by an *overall aggregate* of 1,972 visits among MiPCT beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, **ER visits not leading to a hospitalization** increased by an *overall aggregate* of 5,031 visits among MiPCT beneficiaries compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* effects of MiPCT among Medicare beneficiaries with behavioral health conditions were observed for behavioral health inpatient visits, behavioral health ER visits, or behavioral health outpatient visits.

Table 10-31
Michigan: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs		N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions										
Year One	4,718	-0.25	[-0.67, 0.17]	0.02	[-0.23, 0.27]	3,361	0.10	[-0.95, 1.15]	0.75	[-0.09, 1.58]
Year Two	5,092	-0.12	[-0.53, 0.29]	0.21	[-0.03, 0.45]	3,898	0.92	[-0.18, 2.03]	1.60*	[0.60, 2.60]
Year Three	4,545	-0.61	[-1.41, 0.18]	-0.37	[-0.91, 0.17]	4,560	-1.01	[-2.30, 0.28]	-0.04	[-0.99, 0.92]
Overall	6,792	-0.30	[-0.77, 0.17]	-0.02	[-0.28, 0.25]	6,585	0.02	[-0.74, 0.78]	0.79*	[0.09, 1.50]
Overall Aggregate		-122		-6			7		231*	
ER visits not leading to hospitalization										
Year One	4,718	0.31	[-1.96, 2.58]	0.98	[-0.52, 2.49]	3,361	4.75*	[2.96, 6.54]	3.83*	[0.67, 7.00]
Year Two	5,092	-0.68	[-2.87, 1.51]	1.34*	[0.05, 2.64]	3,898	2.49*	[1.03, 3.94]	3.05	[-0.64, 6.75]
Year Three	4,545	-0.67	[-4.10, 2.76]	-0.13	[-1.78, 1.51]	4,560	-1.22	[-3.10, 0.66]	0.00	[-2.91, 2.91]
Overall	6,792	-0.33	[-2.71, 2.05]	0.81	[-0.33, 1.96]	6,585	1.96*	[0.68, 3.24]	2.28	[-0.62, 5.18]
Overall Aggregate		-132		329			572*		666	

(continued)

Table 10-31 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs		N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health inpatient admissions										
Year One	4,718	0.00	[−0.03, 0.02]	0.01	[−0.01, 0.02]	3,361	0.13	[−0.07, 0.34]	0.16	[−0.07, 0.38]
Year Two	5,092	−0.03	[−0.12, 0.07]	0.00	[−0.01, 0.02]	3,898	0.09	[−0.08, 0.26]	0.14	[−0.10, 0.38]
Year Three	4,545	0.00	[−0.01, 0.02]	0.00	[−0.01, 0.02]	4,560	−0.27	[−0.67, 0.13]	0.11	[−0.20, 0.43]
Overall	6,792	−0.01	[−0.05, 0.03]	0.00	[−0.01, 0.02]	6,585	−0.02	[−0.08, 0.05]	0.14	[−0.12, 0.39]
Overall Aggregate		−4		2			−5		39	
Behavioral health ER visits										
Year One	4,718	0.26	[−0.03, 0.56]	0.20	[−0.12, 0.51]	3,361	1.94*	[0.68, 3.19]	1.85*	[0.44, 3.26]
Year Two	5,092	0.09	[−0.17, 0.35]	0.12	[−0.20, 0.44]	3,898	0.96*	[0.03, 1.89]	1.21*	[0.17, 2.26]
Year Three	4,545	−0.09	[−0.47, 0.29]	0.13	[−0.13, 0.39]	4,560	−1.83*	[−3.17, −0.49]	−0.61	[−1.50, 0.27]
Overall	6,792	0.10	[−0.13, 0.33]	0.15	[−0.11, 0.42]	6,585	0.34	[−0.43, 1.11]	0.80	[−0.04, 1.64]
Overall Aggregate		41		61			99		235	

(continued)

Table 10-31 (continued)
Michigan: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	Children					Adults				
	N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs		N	MiPCT practices vs. CG PCMHs		MiPCT practices vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits										
Year One	4,718	5.10*	[1.12, 9.07]	5.05*	[1.09, 9.02]	3,361	-0.45	[-4.00, 3.10]	5.01*	[0.10, 9.93]
Year Two	5,092	-6.55*	[-9.84, -3.27]	-3.20	[-7.35, 0.95]	3,898	-8.21*	[-13.64, -2.79]	-1.01	[-6.69, 4.67]
Year Three	4,545	-7.56*	[-12.71, -2.41]	-2.18	[-6.53, 2.17]	4,560	-10.79*	[-16.86, -4.71]	-4.03	[-10.05, 1.99]
Overall	6,792	-2.71*	[-5.33, -0.09]	0.00	[-3.69, 3.68]	6,585	-6.65*	[-11.44, -1.86]	-0.14	[-5.31, 5.04]
Overall Aggregate		-1,095*		-1			-1,940*		-40	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique MiPCT Medicaid participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events among MAPCP Demonstration Medicaid beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter divided by total number of beneficiaries with behavioral health conditions attributed during the year(s).

CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; MiPCT = Michigan Primary Care Transformation Project; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children and adults with behavioral health conditions, we found little evidence that MiPCT reduced the likelihood of having at least one of the selected utilization measures, with the exception of a reduced likelihood of a behavioral outpatient visit. However, there were inconsistencies in the statistical significance of this finding across CGs because this effect was only found with reference to the PCMH CG. Specifically, **Table 10-31** shows the following:

- Among Medicaid children with behavioral health conditions, the *overall aggregate* number of beneficiaries with a **behavioral health outpatient visit** decreased by 1,095 compared with similar beneficiaries assigned to PCMH practices.
- Among Medicaid adults with behavioral health conditions, the *overall aggregate* number of beneficiaries with an **all-cause inpatient admission** increased by 231 compared with similar beneficiaries assigned to non-PCMH practices.
- Among Medicaid adults with behavioral health conditions, the overall aggregate number of beneficiaries with an **ER visits not leading to hospitalization** increased by 572 compared with similar beneficiaries assigned to PCMH practices.
- Among Medicaid adults with behavioral health conditions, the *overall aggregate* number of beneficiaries with a **behavioral health outpatient visit** decreased by 1,940 compared with similar beneficiaries assigned to PCMH practices.

No statistically significant *overall* effects of MiPCT among Medicaid children with behavioral health conditions were observed for all-cause inpatient admissions, ER visits not leading to a hospitalization, behavioral health inpatient admissions, or behavioral health ER visits. No statistically significant *overall* effects of MiPCT among Medicaid adult beneficiaries with behavioral health conditions were observed for behavioral health inpatient visits or behavioral health ER visits.

10.7.3 Discussion of Special Populations

MiPCT did not target any specific population for special interventions or services other than high-risk individuals who received care management. Respondents believed that the patient-centered approach of PCMHs made a targeted approach to particular populations unnecessary, but practices generally worked with patients with multiple chronic conditions, especially those who had an inpatient hospitalization or ER use. Behavioral health care was a clinical area of emphasis later in the MiPCT initiative, and some care managers and physicians interviewed reported focusing on behavioral health issues, such as depression screening. Fewer than half of Medicare respondents to the CAHPS PCMH survey reported that their practice asked about behavioral health issues. Moreover, on the provider survey, a lower share of Michigan providers reported offering comprehensive referrals to behavioral health providers compared with the other MAPCP Demonstration states.

Consistent with the implementation of MiPCT, there were more significant findings in the expected direction for demonstration beneficiaries in Medicare and Medicaid with multiple chronic conditions and dually eligible demonstration beneficiaries, and fewer significant findings

for Medicare and Medicaid populations with behavioral health care conditions. For example, analyses of Medicare claims data found that MiPCT was associated with significantly lower PBPM Medicare expenditures for people with multiple chronic conditions relative to both CGs. Significantly lower expenditures also were found for dually eligible beneficiaries relative to the PCMH CG, but not the non-PCMH CG. In contrast, overall estimates of expenditures were not significantly lower for MiPCT beneficiaries with behavioral health conditions relative to either CG.

Analyses of expenditures for Medicare beneficiaries with multiple chronic conditions assigned to MiPCT practices show reductions in spending categories similar to those of the general population relative to the PCMH practices. Expenditure outcomes are associated with more significant results than any other outcomes analyzed.

Somewhat mirroring the results for the general population, there were fewer significant and positive process of care findings for the Medicare population with multiple chronic conditions than for the Medicaid population with multiple chronic conditions. In the *Medicare* claims analysis of indicators relating to diabetes among beneficiaries with multiple chronic conditions, significant findings were in an unexpected direction, indicating less compliance with recommended processes when compared with other practices. The MiPCT initiative ran learning collaboratives specifically on diabetes care for lower-performing practices late in the demonstration, indicating awareness of some quality gaps for some practices. Yet, examining these same measures for the adult *Medicaid* population, beneficiaries in MiPCT practices had several significant results relative to one of the CGs, almost all of which are in the expected direction, although results vary by CG.

Medicare and Medicaid beneficiaries with behavioral health conditions were a small portion of the overall patient population and were not a major focus of MiPCT. Perhaps understandably, then, few significant differences were identified in terms of behavioral and nonbehavioral health care utilization among MiPCT Medicare beneficiaries with behavioral health conditions relative to Medicare beneficiaries with behavioral health conditions assigned to the PCMH or non-PCMH CGs. Importantly, however, acute-care expenditures for Medicare beneficiaries with behavioral health conditions were lower relative to the PCMH CG. For adult Medicaid beneficiaries with behavioral health conditions, MiPCT beneficiaries had fewer all-cause admissions relative to the PCMH CG but more ER visits relative to the non-PCMH CG.

10.8 Discussion of Michigan's MAPCP Demonstration

A joint initiative of Medicare, Medicaid, BCBSM, BCN, and Priority Health, MiPCT was by far the largest of the eight MAPCP Demonstration states in terms of number of participating practices and beneficiaries. MiPCT provided a comprehensive approach to practice transformation, melding care coordination, financial support and quality incentives, health IT initiatives, technical assistance, and data support. MiPCT was successful in working with participating practices to implement key features of care delivery transformation. There was broad agreement among state officials, payers, physician organizations, and practices that a primary care model with a heavy emphasis on care management was the right approach to reinventing primary care. MiPCT introduced the role of care managers to Michigan primary care practices on a broad scale, successfully embedding an average of 420 care managers in practices

and physician organizations at any given time. Although a multi-payer and not an all-payer model, MiPCT involved a substantial proportion of patients in the participating practices.

The state advanced its HIE infrastructure by improving the ADT notices that practices received from hospitals. In addition, within MiPCT, MDC provided practices with a large amount of data and, over the course of the demonstration, refined the data analytic support it provided to practices by calculating risk scores for patients in every MiPCT practice. The MDC also supplied a data dashboard that drew from claims, encounter, eligibility, and attribution data from multiple payers to physician organizations. Interviews with stakeholders and physicians found a strong commitment to the project and a desire to keep it operating after the CMS demonstration ended.

With the implementation of care managers, an advanced HIE infrastructure, and greater data analytics support, MiPCT resulted in Medicare savings between \$140 and \$295 million during 14 quarters of the MAPCP Demonstration after accounting for the demonstration fees paid by Medicare. CMS paid out more than \$65 million in practice transformation, care coordination, quality incentive, and administrative fees over the course of the demonstration. Most of these savings were due to lower growth in expenditures for hospitalizations, post-acute care, and specialty physicians. Consistent with the focus of the initiative, most savings were due to reduced expenditures among Medicare beneficiaries with multiple chronic conditions. Cost savings were also found among beneficiaries eligible for both Medicare and Medicaid, although not among Medicare beneficiaries with behavioral health conditions, beneficiaries whose reason for eligibility was that they were disabled, and rural and non-White beneficiaries. Data to compute savings for Medicaid beneficiaries were not available.

Most results on other outcomes were inconsistent or not statistically significant. A partial explanation might be that some aspects of practice transformation were not as swiftly or completely implemented as MiPCT initially envisioned. For example, although the volume of patients receiving care management services steadily increased over the period of the demonstration, the total number of patients seen was relatively small, raising questions about whether care managers were seeing enough patients to affect outcomes. In addition, each practice had its own method of deciding which patients to target for care management, raising questions about whether they were selecting patients who would most benefit from the service. Moreover, ADT feeds were established late in the project. Until then, few practices had electronic information sent directly to their EHRs, and they instead relied on faxes, phone calls, and other methods that were not always as timely or accurate.

For the most part, both providers and patients gave high marks to the care coordination and access observed in MiPCT practices, though an analysis of Medicare and Medicaid claims data showed more mixed results. Two major features of MiPCT within participating practices were (1) embedded care managers for care coordination and increased patient self-management support and (2) requirements for practices to increase access to primary care by making clinicians available 24 hours a day, 7 days a week and making at least 30 percent of appointment slots available for same-day appointments. Providers participating in MiPCT self-reported a high level of practice transformation compared with other MAPCP Demonstration states. MiPCT practices scored especially highly on access to care, care management (without involvement of other providers), patient engagement and self-management, quality improvement, and health IT.

Consistent with these findings, The CAHPS PCMH survey found that MiPCT primary care physicians generally were rated highly by their patients, especially regarding office staff, shared decision-making, communication, and access.

Despite provider and patient reports of high access and care coordination, for the Medicare population, MiPCT resulted in relatively few significant differences in the *measures of access and care coordination*. In the expected direction, MiPCT beneficiaries had a greater likelihood of a follow-up visit within 14 days after hospital discharge and were less likely to have 30-day unplanned readmissions than PCMH CG beneficiaries, although not compared with non-PCMH beneficiaries. This finding is consistent with the focus reported by care managers on following up with patients after a hospitalization, but unexpected in that it was not significant relative to beneficiaries receiving care from non-PCMH practices.

With its emphasis on access to primary care, patients in MiPCT practices were expected to have higher primary care visit rates and lower medical specialist and surgical specialist visit rates; however, this change did not occur for either the Medicare or the Medicaid populations. Indeed, Medicaid MiPCT beneficiaries actually had fewer primary care visits and a lower percentage of total visits for primary care relative to some of the CGs. In addition, for children and adults covered by Medicaid, MiPCT practices had lower percentages of primary care visits as a proportion of total visits compared with the PCMH CG; this finding was also significant for children relative to the non-PCMH CG. One possibility is that providers were less responsive to needs of the Medicaid patients—at least some focus group members felt that their providers were not proactive enough in contacting them.

In terms of changes expected to affect quality of care, MiPCT provided a structure within which practices participated in learning activities and benefited from a payment structure that included both PMPM payments to invest in PCMH features, such as all-patient registry software and hiring care managers, and incentive payments for achieving certain quality goals. Despite these provisions, MiPCT was associated with few significant changes in quality indicators for Medicare patients, with some significant results in an undesirable direction. Even though care managers gave a significant amount of attention to people with diabetes, especially in the early part of the demonstration, there was no improvement over time on diabetes measures for Medicare beneficiaries. However, care managers served a relatively small percentage of the total set of MiPCT Medicare beneficiaries, and perhaps not enough to make changes in Medicare-population-wide measures—especially within the time frame of this analysis. In contrast, for adults covered by Medicaid, MiPCT was associated with improvement in most, but not all, of the diabetes measures compared with the PCMH CG. However, no improvement was found for breast cancer, cervical cancer screening, or antidepressant medication management.

Although MiPCT providers and patients reported satisfaction with some aspects of access and care coordination on surveys, the mixed findings on claims-based measures of access and coordination and in focus groups may also be related to mixed findings on MiPCT's goal of achieving efficient utilization patterns among MiPCT beneficiaries. For example, few Medicare patients felt that they had access to their PCMH after-hours, which could lead to higher utilization of ERs, especially after-hours. Analysis shows that Medicare beneficiaries assigned to MiPCT practices had *higher* (not lower) rates of ER visits not leading to hospitalization relative to the non-PCMH CG, and no significant difference relative to the PCMH CG. Structures were

in place to support care managers' follow-up after a hospital discharge, which could have influenced both ER visits not leading to a hospitalization (they did not) and hospital admission rates (they did, somewhat: Medicare beneficiaries attributed to MiPCT practices had lower all-cause admission rates relative to the PCMH CGs but no significant effect relative to the non-PCMH CG). Analyses of Michigan Medicaid encounter data produced similar patterns, with few results in the expected direction. Some structural barriers, such as lack of transportation, limiting access to the MiPCT-participating practices may have contributed to these findings. Unexpectedly, the rate of ER visits not resulting in hospitalization increased for Medicaid adults relative to non-PCMH practices, but there was no significant finding relative to PCMH practices for this measure. Also for Medicaid adults, all-cause admissions were higher overall for beneficiaries assigned to MiPCT relative to those in non-PCMH practices.

Finally, MiPCT anticipated that transformed primary care would reduce health care expenditures through changes in utilization caused by improved care coordination and disease management, which could potentially have a greater impact on people with chronic conditions. Analysis of MiPCT's Medicare beneficiaries with multiple chronic conditions showed few positive outcomes relative to the CGs. Similarly, MiPCT did not implement specific interventions for Medicare and Medicaid beneficiaries with behavioral health conditions, a group with complex needs and high utilization and expenditures, beyond the general practice transformation and care coordination efforts. It is therefore unsurprising that few significant differences emerged for this group.

Michigan offers several lessons for other states seeking to implement PCMHs. Perhaps most importantly, providing PCMHs with direct payment support—as well as data analytics and learning opportunities funded through an administrative fee within its payment model—may produce better results than for PCMHs lacking that support. Even within that structure, there are clear challenges to overcome. For example, care managers are critical to providing the resources that primary care practices need, but integrating them into primary care practices takes significant time and resources. Physician buy-in is critical, and it takes time for providers to learn what care managers can offer and for care managers to successfully deliver on that promise. In addition, 3 years may not be sufficient time to assess the impact of a demonstration like MiPCT fully, especially for changes in population health.

Administratively, Michigan physician organizations played an important role in implementing the state initiative, which reduced the administrative burden on the state but also created a layer between the state and the practices. Nonetheless, something like the physician organizations may be critical in large initiatives with many practices. From a payer participation perspective, explicitly building on a commercial payer's existing practice standards has both advantages and disadvantages. Although building on existing structures eases implementation, Michigan might have been more successful in recruiting other commercial payers if practice standards were not tied to their competitor's (BCBSM) initiative. Closely related to this point is that although multi-payer initiatives are an improvement over single-payer initiatives, many people were left out of the initiative because not all payers participated. This created administrative burdens and confusion among practices.

The final lesson may be that primary care is important, but primary care, by itself, does not control the health care system. Relationships with specialists, hospitals (other than

facilitating discharges), and the long-term services and supports system were not major areas of focus of MiPCT, even though specialists and hospitals are responsible for a substantial portion of Medicare and Medicaid beneficiaries' medical utilization and expenditures and many high-cost beneficiaries need long-term services and supports. This narrowness of focus and lack of integration with the broader health care and long-term services and supports system might have limited MiPCT's impact.

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CHAPTER 11

PENNSYLVANIA

Overview of Pennsylvania Evaluation Results

The Chronic Care Initiative (CCI) began in 2008 with Phase I, combining elements of the patient-centered medical home (PCMH) model and Wagner’s Chronic Care Model (a guide to managing chronic care in the primary care setting), and rolled out as a series of regional interventions. Medicare joined CCI at the beginning of Phase II (2012–2014), which included the Northeast and Southeast Pennsylvania regions that participated in Phase I. The two regions adopted a single payment methodology—a combination of monthly care-coordination fees and the opportunity to receive shared savings payments—and aligned requirements (e.g., use of a care manager) and learning collaborative activities for participating practices.

Below are some of the key findings from the MAPCP Demonstration in Pennsylvania:

- Approximately 42,000 Medicare beneficiaries and 46,000 Medicaid beneficiaries participated in Phase II of CCI. In December 2014, CCI had 388 participating providers at 44 practices.
- CMS paid out more than \$5 million in care management fees over the course of the demonstration and, in the demonstration’s third and final year, paid an additional \$7 million in shared savings to practices.
- There were significant reductions in total Medicare expenditures and large reductions in other categories before taking into account demonstration payments. However, after accounting for the demonstration fees and shared savings payments made by Medicare, the MAPCP Demonstration resulted in no significant impacts on Medicare expenditures.
- Several commercial payers left the initiative due to the administrative cost of participation and the lack of evidence of a return on investment (RoI). Payer attrition shook practice confidence in the initiative and reduced the total dollars available to practices to fund their transformation activities. This payer attrition, in addition to the lack of shared savings payments during the first 2 years and decreases in the per member per month (PMPM) payments in the last 2 years, contributed to withdrawing from the initiative in Year Three.
- The on-site care manager was the most significant component of practice change in Phase II. Responsibilities included providing care transition services, engaging in case review and planning, providing medication management services, identifying high-risk patients through risk stratification, developing and implementing care plans, and managing and tracking tests, referrals, and patient health status. Consistent with the importance of care managers, CCI was associated with increases in the rate of follow-up visits within 14 days after hospital discharge and improved continuity of care among Medicare beneficiaries. Results for preventable hospital admissions,

unplanned readmissions, and specialty visits for Medicare beneficiaries suggested that utilization of those services also was slowing, although they did not reach statistical significance. Among adult Medicaid beneficiaries, CCI was associated with decreases in emergency room (ER) visits not leading to a hospitalization and all-cause admissions. Results suggested that specialty visit rates also were slowing.

- Although practices engaged in several quality improvement activities, such as using patient registries as a tool to conduct population-based tracking and analysis as well as submitting and using data related to the state's 24 performance measures, there was no improvement in claims-based quality measures. This finding may reflect CCI's greater emphasis on practice accountability for transformation and diminished emphasis on practice performance on a range of process and quality measures.
- CCI did not include any specific interventions for special populations, although practices did pay particular attention to high-risk patients and patients with chronic conditions. CCI practices' focus on these Medicare beneficiaries likely contributed to overall slower growth in acute-care, outpatient, primary care physician, and laboratory expenditures among this subgroup, compared with similar beneficiaries in other PCMH practices.
- Although practices were engaging in more patient outreach using patient agendas and group and one-on-one meetings to educate patients about their conditions, there was room for improvement, particularly with regard to enabling patient self-management.

Introduction

In the remainder of this chapter, we present qualitative and quantitative findings related to Phase II of the CCI, Pennsylvania's multi-payer initiative, which added Medicare as a payer in 2011 to implement the MAPCP Demonstration. We report findings from:

- interviews conducted with practice staff, state officials, and payers during our three annual site visits to Pennsylvania in late 2012, 2013, and 2014;
- a patient experience survey fielded among Medicare fee-for-service (FFS) beneficiaries in mid-2014;
- focus groups with Medicare FFS, Medicaid, and dually eligible beneficiaries and their caregivers in late 2014;
- practice transformation surveys fielded among participating practices in early 2015;
- analyses of administrative data for Medicare FFS and Medicaid beneficiaries from 2011 through 2014; and
- secondary data and documents such as Medicare and Medicaid claims, state applications, state interim reports, and notes from monthly state conference calls.

To understand patients' perspectives on the care they received from CCI practices more fully, we conducted focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers and fielded the Consumer Assessment of Healthcare Providers and Systems (CAHPS) PCMH survey among Medicare FFS beneficiaries. Ten focus groups were held in Pennsylvania in November 2014: five in Philadelphia and five in Scranton. At each site, separate groups were held for each of the following: Medicare low-risk (Hierarchical Condition Category [HCC] score less than 1.22), Medicare high-risk (HCC score equal to or greater than 1.22), dually eligible beneficiaries, caregivers of Medicare and dually eligible beneficiaries, and Medicaid beneficiaries. Groups ranged in size from three to eight participants, for a total of 55 participants. See *Appendix O* for more details about focus group participant characteristics.

The CAHPS PCMH survey was fielded in April and May 2014 to a random sample of 1,463 Medicare beneficiaries attributed to MAPCP Demonstration practices in Pennsylvania during Quarter 7. At the beginning of the survey, respondents were asked to confirm that they had received care from the designated demonstration practice in the previous 12 months. In Pennsylvania, a 41.6 percent response rate was achieved with a total of 584 completed surveys; both numbers exceeded the targets. See *Appendix S* for more details about the CAHPS PCMH survey.

To understand health care providers' adoption of the PCMH model of care more fully, we fielded an online survey among all practices participating in the MAPCP Demonstration, including the 41 Pennsylvania practices participating in the demonstration at the time of our survey. A total of 46 providers from 27 of the 41 Pennsylvania practices completed the survey.

This chapter is organized by major evaluation domains. *Section 11.1* reports state implementation activities, characteristics of practices, and demographic and health status characteristics of Medicare FFS and Medicaid beneficiaries participating in CCI. *Section 11.2* reports practice transformation activities. The subsequent sections of this chapter report findings for the five evaluation domains related to outcomes: quality of care, patient safety, and health outcomes (*Section 11.3*); access to care and coordination of care (*Section 11.4*); beneficiary experience with care (*Section 11.5*); effectiveness as measured by health care utilization and expenditures (*Section 11.6*); and special populations (*Section 11.7*). The chapter concludes with a discussion of the findings (*Section 11.8*).

11.1 State Implementation

In this section, we present findings related to the implementation of Pennsylvania's CCI Phase II initiative and changes made by the state, practices, and payers during our evaluation period for the MAPCP Demonstration. We provide information related to the following implementation evaluation questions:

- Over the evaluation period, what major changes were made to the overall structure of CCI?
- Were any major implementation issues encountered during the evaluation period, and how were they addressed?
- What external or contextual factors affected implementation?

The state profile in **Section 11.1.1**, which describes the major features of the state's initiative and the context in which it operated, draws on a variety of sources, including quarterly reports submitted to CMS by Pennsylvania CCI staff; monthly calls between CCI staff, CMS staff, and evaluation team members; news articles; state and federal Web sites; and the interviews conducted during our three site visits. **Section 11.1.2** presents a logic model reflecting our understanding of the link between specific elements of CCI and expected changes in outcomes. **Section 11.1.3** presents key findings gathered from the site visit regarding the implementation experience of state officials, payers, and providers during the evaluation period. **Section 11.1.4** concludes the State Implementation section with lessons learned.

11.1.1 Pennsylvania State Profile as of December 2014

Planning for CCI began in 2006 as an initiative of Pennsylvania Governor Ed Rendell. Phase I of CCI (2008–2011) rolled out in seven regions of the state, starting with the Southeast Pennsylvania region in May 2008. Phase I combined elements of the PCMH model and Wagner's Chronic Care Model (Wagner et al., 2001), a model for providing high-quality care to patients with chronic illnesses that emphasizes collaboration and patient self-management. The seven regions participating in Phase I featured varying program models, with different requirements for practices to obtain National Committee for Quality Assurance (NCQA) Physician Practice Connections (PPC®)-PCMH™ recognition, payments to practices, and other elements.

Phase II of CCI began on January 1, 2012, when Medicare joined as a payer in the Northeast and Southeast Pennsylvania regions. In Phase II, the Northeast and Southeast Pennsylvania regions adopted a single payment methodology and aligned requirements and learning collaborative activities for participating practices. Medicare ceased participating in the state initiative on December 31, 2014 as scheduled, and CCI ended at that time as well.

The state was advised by CCI's Executive Steering Committee, which included payer and practice representatives from both participating regions.

State environment. CCI saw significant changes in payer participation during the transition from Phase I to Phase II in 2011. Phase I used a regulatory approach to compel insurer participation, requiring Medicaid managed care organizations (MCOs) to participate as a condition of their contracts with the state Department of Public Welfare. Phase II instituted a voluntary approach to payer participation, removing participation requirements from MCO contracts. Several payers declined to join Phase II or withdrew from the initiative.

Pennsylvania had several other programs in the state operating concurrently with the MAPCP Demonstration that may have affected outcomes for CCI participants and the comparison population:

- Geisinger Health System, a major insurer and delivery system in Northeast Pennsylvania, participated in CCI as a commercial payer and provider and also participated in Medicare's Physician Group Practice (PGP) Transition Demonstration. Seven Geisinger-owned practices participated in both CCI and the PGP Transition Demonstration. These practices were not eligible to receive shared savings payments from two Medicare demonstrations; therefore, they were eligible to receive shared

savings payments from Medicare under the PGP Transition Demonstration, but not under the MAPCP Demonstration.

- Several payers in participating regions, including Blue Cross of Northeastern Pennsylvania and Geisinger, also operated their own PCMH and pay-for-performance initiatives to provide incentives for efficient and high-quality care within their provider network. The extent to which CCI practices also participated in individual payers' PCMH programs was not known.
- Pennsylvania received \$17 million in Health Information Technology for Economic and Clinical Health (HITECH) funds to support development of a statewide health information exchange (HIE). The state also received funding for two Regional Extension Centers. In addition, the Keystone Beacon Community, which used HITECH funding and was led by Geisinger Health System, focused on improving care coordination by using health information technology (health IT) in five Pennsylvania counties. Although the Keystone Beacon Community service area did not overlap with any regions participating in Phase II of CCI, three were CG (CG) counties for the demonstration evaluation.
- In February 2013, Pennsylvania received a \$1.6 million State Innovation Model (SIM) Initiative Model Design grant from CMMI to develop a State Health Care Innovation Plan. Planning for the SIM initiative was based at the Department of Health (DOH) Center for Practice Transformation and Innovation, which also housed CCI, and included a focus on building primary care infrastructure in the state. On December 15, 2014, Pennsylvania received a second SIM Initiative Model Design grant of \$3 million to refine its State Health Care Innovation Plan further; it had 12 months to submit that plan to CMS. Some CCI participants viewed SIM as the next logical step after CCI and viewed their participation in CCI as an investment in that future. The prospect of Pennsylvania potentially receiving a SIM Initiative Model Test grant encouraged some CCI participants to continue their CCI participation.

During Year Three, other developments that potentially affected the initiative included the following:

- Payers began to provide practice-level utilization data on hospital patients and ER visits and report information to the state and to practices. The first Phase I evaluation findings were released in 2014—the third and final year of the MAPCP Demonstration. The first study found that southeast pilot practices had significantly greater improvement relative to comparison practices on only one of 11 quality measures studied and no significant changes in cost or utilization (Friedberg, Schneider, Rosenthal, et al., 2014). The second study found a favorable impact on utilization and clinical quality among the northeast practices (Friedberg, Rosenthal, Werner, et al., 2015). A third study on the Independence Blue Cross PCMH program showed reduced ER utilization among patients with chronic illnesses who belonged to a PCMH (Higgins, Chawla, Colombo, et al., 2014). The lack of evidence on RoI during the first 2 years of the MAPCP Demonstration negatively affected payer and practice enthusiasm for the initiative.

Demonstration scope. Phase II of CCI began with 46 practices located in the state's Northeast and Southeast regions, with an expectation that all practices would renew their NCQA PPC®-PCMH™ recognition when it expired (i.e., 3 years later).

Table 11-1 shows CCI participation at the end of the first, second, and third years of the demonstration.¹ The number of participating practices with attributed Medicare FFS beneficiaries decreased from 47 at the end of Year One to 36 in Year Three. At least three practices reported leaving because of insufficient financial support to make and sustain the practice changes required in the CCI participation agreement, including the requirement that they have care managers. A large group practice in the Northeast left because of difficulty in covering administrative costs after Medicaid MCOs and the Blue Cross of Northeast Pennsylvania plan stopped participating as payers in the initiative, lack of Medicare shared savings, and a decreased PMPM payment rate. Two practices left to consolidate operations at another site not participating in the MAPCP Demonstration.

The number of providers at participating practices increased by about 2 percent between the end of Year One (December 31, 2012) and the end of Year Three (December 31, 2014), from 311 to 316. In each year, a small number of practices did not have any attributed Medicaid beneficiaries, but in each year, pediatric practices participating in CCI and receiving Medicaid payments were included. As a result, the number of Medicaid participating practices is higher than the number of Medicare participating practices.

The number of all-payer participants was 198,733 after the first year of the MAPCP Demonstration and decreased by 45,136, or 23 percent, falling well short of the state's projections by the end of Year Three. The cumulative number of Medicare FFS beneficiaries who ever participated in the demonstration for 3 or more months increased by 47 percent over this period, from 28,236 to 41,636. The number of Medicaid beneficiaries who ever participated increased by 36 percent, from 33,739 to 45,925, over the evaluation period.

¹ The numbers of Medicare FFS and Medicaid beneficiaries are cumulative and represent the number of beneficiaries who were ever attributed to a CCI practice and participated in CCI for at least 3 months by the dates in the column headings. Therefore, these values include beneficiaries who once participated, regardless of whether they remained assigned to the participating practice as of the dates in the column headings. This accounting reflects the intent to treat design of our evaluation. The number of all payer participants also represent the number of individuals who were ever attributed to a CCI practice.

Table 11-1
Pennsylvania: Number of practices, providers, Medicare FFS and Medicaid beneficiaries, and all-payer participants participating in the Pennsylvania CCI

Participating entities	Number as of December 31, 2012	Number as of December 31, 2013	Number as of December 31, 2014
Medicare			
CCI practices ¹	47	47	36
Participating providers ¹	311	315	316
Medicare FFS beneficiaries ²	28,236	36,360	41,636
Medicaid			
CCI practices ³	74	72	71
Medicaid beneficiaries ³	33,739	39,491	45,925
All-payer			
CCI practices ⁴	—	—	—
Participating providers ⁴	—	—	—
All-payer participants ⁴	198,733	166,082	153,597

NOTES:

- CCI practices include only those practices with attributed Medicare FFS beneficiaries, and participating providers are the providers associated with those practices. Beneficiaries dually eligible for Medicare and Medicaid are included in the count of Medicare FFS beneficiaries.
- The numbers of Medicare FFS beneficiaries are cumulative, representing the number of Medicare FFS beneficiaries who had ever been assigned to participating CCI practices and participated in the demonstration for at least 3 months.
- The numbers of Medicaid beneficiaries are cumulative, representing the number of Medicaid beneficiaries who had ever been assigned to participating CCI practices and participated in the demonstration for at least 3 months.
- The number of participating Medicaid providers could not be determined using the Medicaid managed care encounter files.
- The all-payer numbers are derived from the state using its own methodology. Thus, the numbers reported may not necessarily match the Medicare or Medicaid counts because the methodology may differ.

ARC = Actuarial Research Corporation; CCI = Chronic Care Initiative; FFS = fee-for-service; MAPCP = Multi-Payer Advanced Primary Care Practice; — = data not available.

SOURCES: ¹ARC MAPCP Demonstration Provider File. ²Beneficiary Assignment File. ³Pennsylvania AmeriHealth Medicaid enrollment and managed care encounter files (see *Chapter 1* for more detail about these files);

⁴Pennsylvania Quarterly Reports to CMS.

As of December 2014, six payers participated in the demonstration and five reported their share of total participants: Independence Blue Cross (40% of total participants reported), Medicare FFS (17%), Keystone First (17%), Geisinger (14%), and Aetna (12%). Despite announcing its withdrawal from the demonstration in December 2013, Cigna continued to participate in some demonstration activities (e.g., committee calls) and continued to make payments in 2014 to participating practices for its small number of attributed patients.² Aetna, Geisinger, and Independence Blue Cross operated as both commercial and Medicare Advantage payers. With the withdrawal in March 2014 of Aetna Better Health in the Northeast in March 2014 and the lack of participation by Medicaid managed care plans in the Northeast, the only

² Cigna's number of total participants was not reported for 2014 and therefore is not included in the total number of 2014 participants.

remaining Medicaid managed care plan was Keystone First, operating in the Southeast, was the only Medicaid managed care plan remaining in the initiative at the end of 2014.

Table 11-2 displays the characteristics of the practices with attributed Medicare FFS beneficiaries participating in CCI as of December 31, 2014. There were 36 participating practices with an average of 11 providers per practice. All were either office-based practices (86%) or federally qualified health centers (FQHCs) (14%); there were no critical access hospitals (CAHs) or rural health clinics (RHCs). Nearly all practices were located in metropolitan counties (96%). Four percent were in micropolitan counties, and none were in rural counties. There were 71 participating practices with attributed Medicaid beneficiaries. This included some of the practices with attributed Medicare beneficiaries, and additional pediatric practices that served only Medicaid beneficiaries. The majority were office-based practices (92%), with a small percentage (8%) of FQHCs.

Table 11-2
Pennsylvania: Characteristics of practices participating in the Pennsylvania CCI as of December 31, 2014

Characteristic	Medicare ¹ Number or percent	Medicaid ² Number or percent
Number of practices (total)	36	71
Number of providers (total)	316	—
Number of providers per practice (average)	11	—
Practice type (%)		
Office-based practice	86	92
FQHC	14	8
CAH	0	0
RHC	0	0
Practice location type (%)		
Metropolitan	96	—
Micropolitan	4	—
Rural	0	—

NOTES:

- Pennsylvania did not provide a count of the unique number of Medicaid providers participating in the MAPCP Demonstration.
- Practice location type could not be determined using the Medicaid AmeriHealth managed care encounter files.

ARC = Actuarial Research Corporation; CAH = critical access hospital; CCI = Chronic Care Initiative; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; RHC = rural health clinic; — = data not available.

SOURCE: ¹ARC Q14 MAPCP Demonstration Provider File. ²Pennsylvania AmeriHealth Medicaid enrollment and managed care encounter files (see **Chapter 1** for more details about this file).

In **Table 11-3**, we report demographic and health status characteristics of Medicare FFS beneficiaries assigned to participating CCI practices during the 3 years of the MAPCP Demonstration (January 1, 2012, through December 31, 2014). Beneficiaries with fewer than 3 months of eligibility for the demonstration are not included in our evaluation or this analysis. Seventy-seven percent of the Medicare beneficiaries assigned to CCI practices during the 3 years of the MAPCP Demonstration were age 65 and over, and the mean age was 69. Medicare

beneficiaries were mostly White (81%), most lived in urban areas (85%), and more than half were female (60%). Twenty-two percent were dually eligible for Medicare and Medicaid, and 29 percent were eligible for Medicare originally because of disability. One percent of Medicare beneficiaries had end-stage renal disease (ESRD), and 1 percent resided in a nursing home during the year before their assignment to a CCI practice.

Table 11-3
Pennsylvania: Demographic and health status characteristics of Medicare FFS
beneficiaries participating in the Pennsylvania CCI from January 1, 2012, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Total beneficiaries	41,636
Demographic characteristics	
Age < 65 (%)	23
Age 65–75 (%)	47
Age 76–85 (%)	21
Age > 85 (%)	9
Mean age	69
White (%)	81
Urban place of residence (%)	85
Female (%)	60
Dually eligible beneficiaries (%)	22
Disabled (%)	29
ESRD (%)	1
Institutionalized (%)	1
Health status	
Mean HCC score groups	1.04
Low risk (< 0.48) (%)	24
Medium risk (0.48–1.25) (%)	52
High risk (> 1.25) (%)	24
Mean Charlson Comorbidity Index score	0.85
Low Charlson Comorbidity Index score (= 0) (%)	63
Medium Charlson Comorbidity Index score (≤ 1) (%)	17
High Charlson Comorbidity Index score (> 1) (%)	20
Chronic conditions (%)	
Essential hypertension	32
Diabetes without complications	16
Lipid metabolism disorders	15
Coronary artery disease	11
Cardiac dysrhythmias and conduction disorders	9
Other respiratory disease	9
Acute and chronic renal disease	7
Disorders of joint	7
Anemia	6
Diabetes with complications	5
Dizziness, syncope, and convulsions	5

(continued)

Table 11-3 (continued)
Pennsylvania: Demographic and health status characteristics of Medicare FFS
beneficiaries participating in the Pennsylvania CCI from January 1, 2012, through
December 31, 2014

Demographic and health status characteristics	Percentage or mean
Chronic conditions (%) (continued)	
Hypothyroidism	5
Heart failure	4
Chest pain	4
Urinary tract infection	4
Valve disorders	3
Renal failure	3
Peripheral vascular disease	2
Cardiomyopathy	2
Dementias	1
Malaise and fatigue (including chronic fatigue syndrome)	1
Strokes	1

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using the Medicare EDB and claims data for the 1-year period before a Medicare beneficiary was first attributed to a PCMH after the start of the MAPCP Demonstration.
- Urban place of residence is defined as those beneficiaries living in metropolitan or micropolitan statistical areas defined by the OMB.

CCI = Chronic Care Initiative; EDB = Enrollment Data Base; ESRD = end-stage renal disease; FFS = fee-for-service; HCC = Hierarchical Condition Category; MAPCP = Multi-Payer Advanced Primary Care Practice; OMB = Office of Management and Budget; PCMH = patient-centered medical home.

SOURCE: Medicare enrollment and claims files.

Using three different measures—HCC score, Charlson Comorbidity Index, and diagnosis of 22 chronic conditions—we describe beneficiaries’ health status during the year before their assignment to a CCI practice. HCC scores for Medicare beneficiaries assigned to a CCI practice were calculated using the 12 months of Medicare claims data prior to the year they were first assigned. Medicare beneficiaries assigned to a CCI practice had a mean HCC score of 1.04, meaning that they were predicted to be 4 percent more costly than an average Medicare FFS beneficiary. Beneficiaries’ average score on the Charlson Comorbidity Index was 0.85.³ Just under two-thirds (63%) of beneficiaries had a low (zero) score, indicating that they did not receive medical care for any of the 18 clinical conditions in the index in the year before assignment to a participating CCI practice. The most common chronic conditions diagnosed were hypertension (32%), diabetes without complications (16%), lipid metabolism disorders

³ The Charlson Comorbidity Index categorizes selected diagnoses into groups of comorbidities. Weights are assigned to each comorbidity category, with larger weights assigned to more serious diagnoses. A score of 0 indicates the individual has no comorbidities. The higher the score, the greater the likelihood of mortality or high resource use for the individual. Therefore, the larger the study samples’ Charlson Comorbidity Index, the greater morbidity in the study sample.

(15%), and coronary artery disease (11%). Less than 10 percent of beneficiaries were treated for any of the other chronic conditions.

In *Table 11-4*, we report demographic and health status characteristics of Medicaid beneficiaries residing in Southeast Pennsylvania, enrolled in one Medicaid managed care plan (AmeriHealth), and assigned to participating CCI practices during the 3 years of the MAPCP Demonstration (January 1, 2012, through December 31, 2014). Pennsylvania was unable to provide enrollment and claims data for all CCI Medicaid participants. One of its Medicaid managed care partners participating in CCI, AmeriHealth, provided enrollment and managed care encounter data for AmeriHealth-enrolled Medicaid beneficiaries whose assigned primary care provider (PCP) was at a CCI intervention or CG practice. We report on these AmeriHealth enrollees. At the beginning of the MAPCP Demonstration, AmeriHealth's CCI members accounted for a little over half of the Medicaid managed care members enrolled in CCI. Because two Medicaid managed care plans terminated their participation in CCI over the course of the demonstration, by December 2014 AmeriHealth members accounted for 100 percent of Pennsylvania's Medicaid managed care enrollment in CCI.

Table 11-4
Pennsylvania: Demographic and health status characteristics of AmeriHealth Medicaid beneficiaries participating in the Southeast Region of Pennsylvania CCI from January 1, 2012, through December 31, 2014

Demographic and health status characteristics	Children, percentage or mean	Adults, percentage or mean
Total beneficiaries	29,595	16,330
Demographic characteristics		
Mean age	6	37
White (%)	80	82
Urban place of residence (%)	100	100
Female (%)	49	73
Medicaid eligibility due to disability (%)	8	33
Other Medicaid eligibility (%)	92	67
Institutionalized (%)	0	0
Health status		
Mean CDPS score groups	0.80	1.31
Low birth weight and serious perinatal problems (%)	1	0
Mean number of chronic conditions	1	2
0 chronic conditions	61	40
1–2 chronic conditions	32	26
3 or more chronic conditions	7	35

NOTES:

- Percentages and means are weighted by the fraction of the year that a beneficiary met MAPCP Demonstration eligibility criteria.
- Demographic and health status characteristics are calculated using Pennsylvania enrollment and claims files from AmeriHealth, using claims data for the 1-year period before a Medicaid beneficiary first was attributed to a PCMH after the start of the MAPCP Demonstration.
- Pennsylvania's Medicaid data were provided by one Medicaid managed care plan in Southeast Pennsylvania, a predominantly urban area. Therefore, all MAPCP Demonstration beneficiaries are considered to reside in an urban area.
- Medicaid beneficiaries enrolled in this one Medicaid managed care plan in Southeast Pennsylvania lived in the community, so no beneficiaries were institutionalized in the year before enrollment in CCI.

CCI: Chronic Care Initiative; CDPS = Chronic Illness and Disability Payment System; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

SOURCE: Pennsylvania AmeriHealth Medicaid enrollment and claims files.

Sixty-four percent of the AmeriHealth Medicaid beneficiaries assigned to CCI practices during the 3 years of the MAPCP Demonstration were children, with a mean age of 6 years, and the remaining 36 percent of beneficiaries were adults, with a mean age of 37 years. Beneficiaries dually enrolled in Medicaid and Medicare are excluded from this table because they are included in the previous table. AmeriHealth Medicaid beneficiaries were mostly White (about 80%). Given the location of this Medicaid managed care plan, all AmeriHealth Medicaid beneficiaries resided in an urban area. About half of the children were female, whereas almost three-fourths of adults were female. Only 8 percent of children were eligible for Medicaid due to disability, compared with 33 percent of adults. AmeriHealth Medicaid beneficiaries enrolled in this one Medicaid managed care plan lived in the community, so no beneficiaries were institutionalized.

Children had relatively few chronic conditions (7% had three or more chronic conditions), and they had a low Chronic Illness and Disability Payment System (CDPS) score.⁴ In contrast, adults had significantly more chronic conditions (35% had three or more chronic conditions) and a higher CDPS score.

Practice expectations. During Phase I, participating practices were required to achieve NCQA PPC®-PCMHTM 2008 recognition. In the Northeast region, practices were required to achieve recognition by the third year of Phase I. In the Southeast region, practices were required to achieve NCQA PPC®-PCMHTM recognition by the end of the first year of Phase I.

To participate in Phase II of CCI, practices were required to renew their NCQA PCMH recognition when it expired (i.e., 3 years later). Practices underwent NCQA PCMH 2011 assessment on a rolling basis and were required to satisfy additional criteria related to pre-visit preparations, individualized care plans, population management, and other care management activities. Based on December 2014 NCQA PCMH recognition information provided by the state, three-quarters of the Phase II practices participating in Phase II had attained NCQA 2011 Level 3 recognition.

In July 2012, CCI implemented a “practice performance assessment framework” as an additional tool for evaluating practice transformation and quality. Program leaders updated the framework in July 2013 to align the clinical performance measures more closely with those used to calculate shared savings. The state and private payers gathered additional information about practice transformation annually through care management audits, a practice transformation self-assessment tool, monthly practice narratives that had to be completed and submitted to the practice coach (see “Support to practices,” below), and clinical data from practice registries managed by the Pennsylvania Academy of Family Physicians (PAFP).

The framework measured practice performance across three areas: clinical performance improvement, transformation, and engagement. Within the clinical performance improvement domain, practices had to meet annual performance targets for half of both process and outcome measures included in the program’s measure set. Practices had to demonstrate transformation by completing a self-assessment and passing site audits to assess care management systems. For example, all practices were required to use care managers to coordinate care for high-risk patients, and they were audited annually for their progress in this area. Within the engagement domain, program leaders tracked practice participation in learning collaborative activities and their fulfillment of data reporting requirements. The requirement that practices achieve NCQA PCMH recognition also fell within the engagement domain. Practices that did not pass the state audit or assessment had to develop a 30-day corrective plan of action and were reaudited or reassessed at the end of the 30-day period.

Support to practices. From January 1, 2012, through December 31, 2014, demonstration practices received a total of \$5,349,993 in Medicare MAPCP Demonstration payments.⁵ The

⁴ The CDPS maps selected diagnoses and prescriptions to numeric weights. Beneficiaries with a CDPS score of 0 have no diagnoses or prescriptions that factor into creating the CDPS score. The more diagnoses a beneficiary has or the greater the severity of a particular diagnosis, the larger the CDPS weight. Therefore, the larger the study samples’ CDPS scores, the greater morbidity in the study sample.

⁵ Medicare MAPCP Demonstration payments reflect the 2 percent reduction that began in April 2013 as a result of sequestration.

average Medicare payment per practice over the 3 years of the demonstration was \$109,184 (*Table 11-5*).

Table 11-5
Pennsylvania: Average Medicare MAPCP Demonstration payments per practice by year and overall

Year	Average Medicare payment per practice ¹	Total Medicare payments ¹
Year One	\$44,118	\$2,073,566
Year Two	\$37,289	\$1,827,146
Year Three	\$31,506	\$1,449,280
Overall	\$109,184	\$5,349,993

NOTES:

- Total Medicare payments reflect fees paid to practices for beneficiaries attributed to a practice during the quarter the MAPCP Demonstration fee was paid.
- The average Medicare payment per practice includes payments to practices only.

MAPCP = Multi-Payer Advanced Primary Care Practice

SOURCE: ¹Medicare claims data

Practices participating in Phase II of CCI received two PMPM payments from participating payers that varied by initiative year and patient age (*Table 11-6*):

- Payments for physician-coordinated care oversight services; and
- Payments that varied, based on patient age, to fund care coordinators.

Table 11-6
Pennsylvania: PMPM payments to participating practices

Service	Year One	Year Two	Year Three
Physician coordinated care oversight services	\$1.50	\$1.28	\$1.08
Coordinated care fees (vary based on patient age)			
Age ≤ 18	\$0.60	\$0.51	\$0.43
Age 19–64	\$1.50	\$1.28	\$1.08
Age 65–74	\$5.00	\$4.25	\$3.61
Age ≥ 75	\$7.00	\$5.95	\$5.06

NOTE: The PMPM payment amounts do not reflect the 2 percent reduction in Medicare payments that began in April 2013 as a result of sequestration.

PMPM = per member per month.

Practices also may have received shared savings payments from participating payers if they demonstrated sufficient savings and achieved key quality metrics. Participating commercial payers and CMS calculated net savings using different methodologies. Commercial payers calculated gross savings annually by comparing cost trends for beneficiaries assigned to the practice to cost trends across the payers' book of business. CMS calculated gross savings for Medicare beneficiaries in CCI by comparing cost trends among CCI practices regionally to a CG of PCMH practices not participating in CCI. CMS calculated shared savings at the regional level because average expenditures for an individual practice's patient panel were highly variable.

Total per beneficiary per month (PBPM) payments to the practice were then subtracted to obtain net savings, with CMS requiring regions to achieve a minimum savings rate before net savings were reported. If any net savings then did result, actual payouts were determined by each practice's performance on quality and utilization metrics.

The shared savings methodology contained several adjustments and exclusions designed to protect practices and payers from variation in cost and quality resulting from different patient populations or chance, including risk adjustment, practice groupings, and, for some payers, exclusion of high-cost outliers. Each payer separately grouped practices, calculated savings, and distributed any shared savings to their members. During Year Three, the Pennsylvania DOH identified some variations in the way several non-Medicare payers were calculating shared savings and, as a result, developed a standard shared savings template for non-Medicare payers to use when calculating future practice savings. For example, some payers had compared pediatric practices with pediatric book-of-business trends (and non-pediatric practices with non-pediatric practice book-of-business trends), whereas other payers compared practices with total book-of-business trends. As a result, the state developed a standard shared savings template for non-Medicare payers to use when calculating future practice savings. The template expected payers to compare practices with total book-of-business (and not specialty-specific book-of-business) trends. Plans were not asked to recalculate earlier shared savings calculations.

The percentage of savings in which practices were eligible to share increased each year as PMPM payments to practices decreased, based on the premise that income from shared savings would offset decreases in PMPM payments over the course of the 3-year initiative. Practices were eligible to share in a maximum of 40 percent of net savings in Year One, 45 percent in Year Two, and 50 percent in Year Three. Shared savings payments also varied according to practices' achievement of quality and efficiency metrics. Required quality metrics differed for adult and pediatric practices, but both included three domains: prevention, management of chronic conditions, and clinical care management.

CMS's shared savings results over the demonstration's 3 years are provided in **Table 11-7**. In Year One, as noted above, CMS calculated savings by region and found that practices in neither region achieved savings beyond the minimum savings rate required to receive Medicare shared savings payments. The change in total practice expenditures in the Northeast were less than those of the comparison practices. Although practices in the Southeast had greater changes in expenditures than the CG, this amount did not exceed the minimum savings rate of 3.1 percent.

In Year Two, CMS found that practices in neither region achieved the minimum savings rate required to receive Medicare shared savings payments. CMS found that practices in the Northeast region did not achieve savings beyond the minimum savings rate of 2.7 percent. In the Southeast region, the change in expenditures was less than those of the comparison practices. As a result, no Medicare shared savings payments were made in either region. Other payers calculated savings at the practice level, with both Aetna and Keystone First reporting savings in the Southeast—Aetna for all practices in the Southeast and Keystone First for adult-serving practices only. Independence Blue Cross and Geisinger did not find any savings.

For the third performance year, CMS reported that both the Northeast and Southeast regions achieved a gross savings that exceeded their minimum savings rates and therefore

received Medicare shared savings payments. CMS found that practices in the Northeast achieved gross savings of 3.7 percent, exceeding the minimum savings rate of 3.0 percent. In the Southeast region, practices achieved gross savings of 7.3 percent, exceeding the minimum savings rate of 2.7 percent. Savings calculations for other payers were not available for this report.

Table 11-7
Shared savings payments by region and year

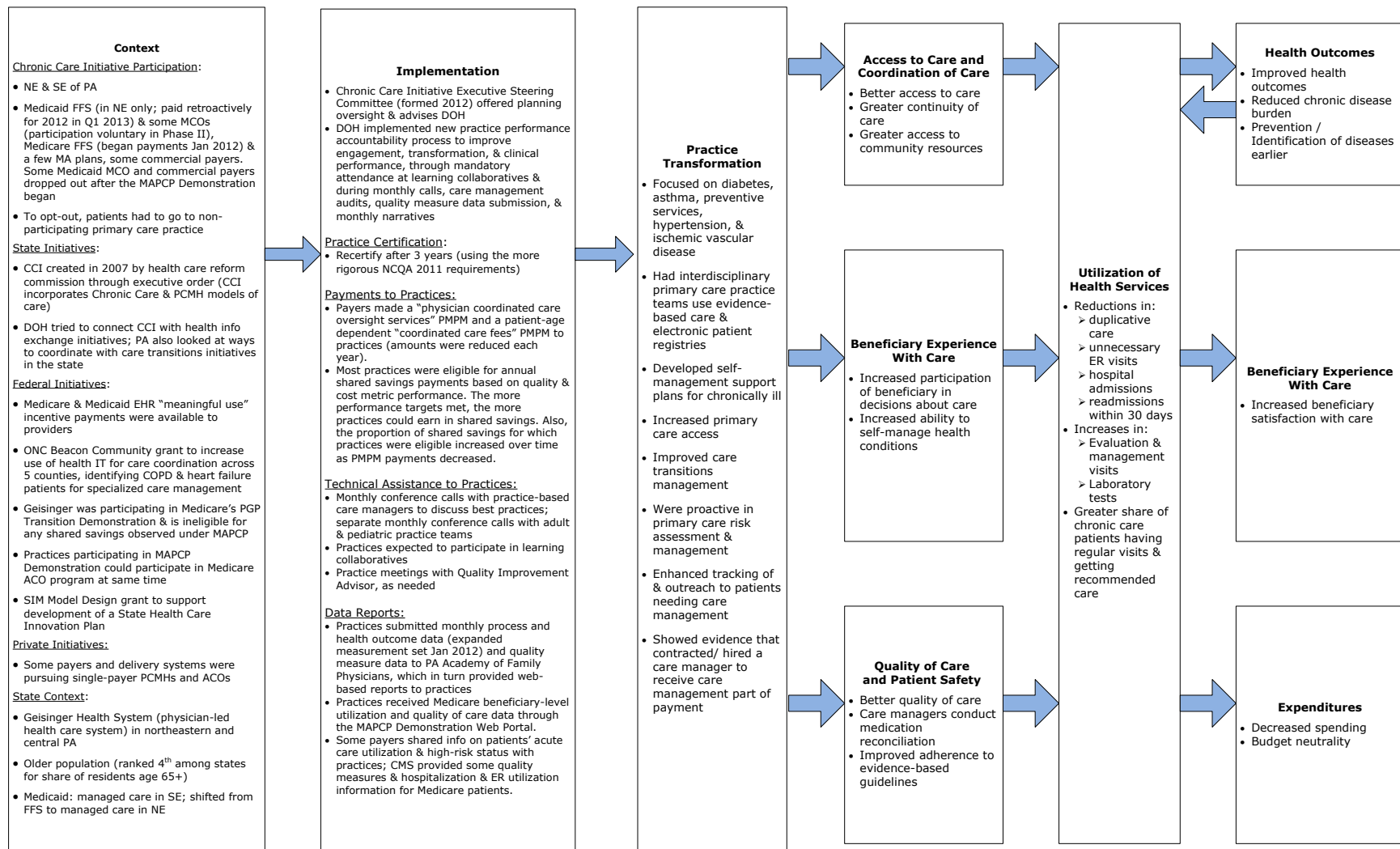
Year	Southeast Pennsylvania	Northeast Pennsylvania
Year 1	\$0 Savings observed, but they did not exceed minimum savings rate	\$0 No savings observed
Year 2	\$0 No savings observed	\$0 Savings observed, but they did not exceed minimum savings rate
Year 3	\$2,355,859	\$5,330,805

CCI supported practices through learning activities, including in-person learning collaborative sessions. CCI also provided monthly telephone calls and on-site visits with a practice coach tailored to the needs of adult practice teams, pediatric practice teams, and practice-based care managers. The focus of technical assistance shifted during Phase II, with the CCI placing greater emphasis on the management of high-risk patients and the role of the care managers. Over the course of the demonstration, however, on-site practice coaching visits diminished. Practices also received regular performance reports on clinical quality metrics, as well as PCMH transformation and engagement in CCI activities, through a Web-based portal run by the PAFP and the practice performance assessment framework process (see *Section 11.2.2* for details).

11.1.2 Logic Model

Figure 11-1 is a logic model of CCI meant to depict the hypothesized relationship between specific elements of CCI and changes in outcomes. The first column describes the context for the demonstration, including the scope of CCI; other state and federal initiatives that could have affected the state initiative; and key features of the state context that could have affected the demonstration, such as the shift in the Northeast region from Medicaid FFS to managed care. The demonstration context affected the implementation of CCI. Implementation activities were expected to promote the transformation of practices to PCMHs, reflected in care processes and other activities. Beneficiaries served by these transformed practices were expected to have better access to more coordinated, safer, and higher-quality care, as well as to have better experiences with care and to be more engaged in decisions about treatments and management of their conditions, as shown in the fourth column. These improvements, in turn, were expected to promote more efficient utilization of health care services, as shown in the fifth column. These changes in utilization were expected to produce further changes, shown in the final column, including improved health outcomes, improved beneficiary experience with care, and reductions in total per capita expenditures—resulting in savings or budget neutrality for the Medicare program and cost savings for other payers. Improved health outcomes, in turn, were expected to reduce utilization further.

Figure 11-1
Logic model for Pennsylvania Chronic Care Initiative



ACO = accountable care organization; CCI = Chronic Care Initiative; CMS = Centers for Medicare & Medicaid Services; COPD = chronic obstructive pulmonary disease; DOH = Department of Health; EHR = electronic health record; ER = emergency room; FFS = fee-for-service; IT = information technology; MA = Medicare Advantage; MAPCP = Multi-Payer Advanced Primary Care Practice; MCO = managed care organization; NCQA = National Committee for Quality Assurance; NE = Northeast; ONC = Office of the National Coordinator for Health Information Technology; PA = Pennsylvania; PCMH = patient-centered medical home; PGP = physician group practice; PMPM = per member per month; SE = Southeast; SIM = State Innovation Model.

11.1.3 Implementation

This section uses primary data gathered from Pennsylvania site visit interviews conducted in Years One, Two, and Three and other sources to present key findings about the implementation experience of state officials, payers, and providers to address the evaluation questions described in *Section 11.1*.

Major changes during the evaluation period. Payer attrition was cited consistently as a significant change and major concern, causing a steep drop in the number of participating patients across both regions.⁶ Also, Northeast practices did not receive Medicaid FFS payments until the first quarter of 2013, paid retroactively back to 2012 after the state overcame initial reluctance to commit to Medicaid FFS participation in the Northeast. The Northeast region's switch from Medicaid FFS to managed care in March 2013 resulted in the loss of Medicaid participation in the region going forward, however.

Major implementation issues during the evaluation period. Sufficient financial support was a major issue for CCI. During site visits in Years Two and Three, practices and state officials expressed frustration over the lack of Medicare shared savings during the first 2 years (shared savings results for the third year of the demonstration, which found that practices in both regions would receive Medicare shared savings payments, were not available until after the demonstration ended). Only a small number of practices received shared savings payments from commercial payers during the demonstration period, contributing to dissatisfaction among CCI participants, particularly practices. Many practices believed that CCI payments were inadequate to fund the required practice transformation investments, reporting, and ongoing care management activities, particularly in light of the lack of shared savings payments and the decreases in PMPM payments in Years Two and Three. Some practices, particularly those that were smaller or not part of a larger system, expressed concern that they would not be able to continue to support their care managers or hire additional staff because of decreased PMPM payments and the lack of shared savings payments. During the third year of the demonstration, at least three practices withdrew from CCI because of insufficient financial support to make and sustain the required practice changes, including funding their care managers. In the same year, a large practice group in the Northeast left CCI because of difficulty covering administrative costs following the loss of Medicaid and the Blue Cross of Northeast Pennsylvania plan as payers in the initiative, lack of Medicare shared savings payments, and a decreased PMPM rate.

External and contextual factors affecting implementation. Several payers and delivery systems across the state pursued single-payer PCMH programs and accountable care organization (ACO) strategies. Many CCI practices participated in these other commercial PCMH and ACO programs, receiving support and infrastructure assistance toward transformation, although CCI practices were precluded from participating in other CMS programs and demonstrations with a Medicare shared savings component (e.g., the Shared Savings Program and Pioneer ACOs).

⁶ All-payer patient participation fell by 16.4 percent from December 31, 2012 to December 31, 2013.

11.1.4 Lessons Learned

Several lessons emerged from our 3 years of site visit interviews. First, payer attrition was an ongoing problem for CCI. Both the administrative cost of remaining in the initiative and the lack of evidence for the RoI contributed to payers' decisions to withdraw from CCI. Program leaders lacked regulatory support and strong state-level leadership to compel payers to remain in the initiative or encourage the Northeast's new Medicaid managed care plans to join CCI.

Second, strong leadership, particularly by the state and commercial plans, was critical, because the state designed and led the multi-payer initiative, but they were not always a consistent force during Phase II of CCI. Leadership turnover at the state level at the start of Phase II resulted in different approaches on key issues, such as shifting to a more voluntary approach to payer participation, a change that slowed and eventually undermined CCI through payer and practice withdrawals from the demonstration. However, CCI also benefited from strong operational leadership from a consultant to the state, who was a source of consistency for CCI participants in Phase I and Phase II.

Third, presenting a strong business case early in the demonstration and supporting practices in developing their business models would have been beneficial. Concerns about the lack of a strong business case contributed to both payer and practice attrition over the course of the demonstration period. Policymakers and providers felt that CCI did not present a strong enough business case to engage and sustain practice and payer commitment over time. One policymaker also noted that many practices, particularly those that were part of larger systems, did not establish a business case for engaging in required activities (e.g., hiring care managers, managing data and analytics) as a way to garner internal support by their leadership for CCI.

11.2 Practice Transformation

This section begins by describing the changes that practices had to make to take part in the demonstration and patients' awareness of these changes, drawing on data from our focus groups and our three site visits (*Section 11.2.1*). We then present practices' experiences using technical assistance provided as part of the demonstration (*Section 11.2.2*), and practices' views on the payment methodology used in this demonstration (*Section 11.2.3*). Next, we present findings from our survey of participating providers about the degree to which they reported engaging in PCMH activities in the third year of the demonstration (*Section 11.2.4*). We then synthesize the site visit and survey findings in *Section 11.2.5*.

11.2.1 Changes Practices Made During the Evaluation Period

PCMH certification and practice transformation. During the first year of the MAPCP Demonstration, respondents highlighted three major areas of practice transformation activity: (1) reorienting practices to population health through use of disease registries; (2) managing patients with chronic conditions using care managers; and (3) engaging in more proactive care, especially for high-risk patients. In later years, practices refined their capabilities in these areas and broadened their activities to include new areas of transformation. First, practices added or strengthened the role of care managers and, in some cases, social workers (e.g., targeting high-risk patients for care management services, following up with patients discharged from the hospital, conducting medication reconciliation). Second, practices also encouraged all of their

staff members, particularly care managers, to work at the top of their licenses or take on additional and more advanced roles. Third, practices tried to obtain timely data from hospitals, specialists, and payers to manage and coordinate care for high-risk patients. Fourth, in Year Three, practices reported offering more group classes and one-on-one education activities for patients with common conditions like diabetes, asthma, and hypertension.

Throughout the demonstration, many practices, particularly those in the Southeast region (where many participating practices were small and unaffiliated with a major hospital or delivery system), had difficulty obtaining data from hospitals, payers, and specialists. Many practices did not receive timely admission and discharge alerts, discharge summaries, completed continuity-of-care documents, or other useful information from hospitals. They also had a negative view of payers' commitment to provide data enabling them to manage their patient population and improve quality more effectively, although they were more complimentary about the Medicare data provided by CMS. Practices worked to overcome the challenges associated with obtaining timely data by using their electronic health record (EHR) and disease registries, although many practices reported difficulty getting useful information needed for population health management and quality measurement from their EHRs.

Unlike Phase I of CCI, NCQA PCMH recognition was de-emphasized in Phase II. Although the practices were required to reapply for and achieve NCQA recognition when their 2008 recognition expired, there was no direct or explicit incentive for practices to move to higher levels of recognition. Instead, greater emphasis was placed on accountability at the practice level for transformation, as well as quality and cost performance.

By the Year Two site visit, some respondents—particularly some payers—believed that the practice assessment tool, the care management audits, and the requirements for reporting data to PAFP contributed to practices' greater engagement and accountability to standards, deadlines, cost, and quality performance. Some plan and practice respondents, however, had concerns about the new approach. For example, some plan and practice respondents felt that the new mechanisms for assessing practice transformation (i.e., care management audits, a practice transformation self-assessment tool, and monthly practice narratives) were too burdensome for practices and could stifle innovation.

Practice staffing changes. Before Phase II of CCI, most practices in the Northeast region had embedded care managers, whereas practices in the Southeast region typically did not (although some care management support from Medicaid managed care plans was available by telephone if requested). During Phase II, however, most practices reported either hiring new staff or using existing care managers more often.

During Phase II, some practices reported hiring additional medical assistants to work with care managers. In some instances, practices also reported hiring a new social worker or behavioral health specialist or using existing staff more often. Practices that hired social workers used them to conduct behavioral health screenings and to forge links with behavioral health care providers and social services. The number and type of newly hired staff, or the amount of additional time used for existing staff to engage in care management activities, depended on the size of the practice. Practices that were part of a larger group or organized delivery system often shared staff with other practices. Some respondents expressed concern that the CCI Phase II

payment methodology did not provide sufficient financial support for enough care managers, given the number of high-risk patients.

By our Year Two site visit, some practices reported that their staff were working at the top of their license, particularly care managers, or taking on more advanced roles. Several practices, especially in the Northeast region, noted that care managers were more integrated with the rest of the practice and that physicians were more comfortable working with the care managers in their practice.

During the third year of the demonstration, practices reported that their care managers focused on high-risk patients, and practices distributed the workload to others (e.g., social workers) in support of the care manager. Practices in both regions reported that their care managers continued to become more integrated in their practice and workflow. Findings from the focus groups are consistent with practice reports of staff expansion. Some participants noticed the new staff at their PCP or specialist offices. One participant noted that additional staff at her PCP's office allowed the providers to be more efficient and see more patients, because new staff were taking on virtually all of the pre-visit tasks. One participant said, "[The new staff are] making it more efficient for the doctors to spend more time with you." Multiple participants mentioned that the new staff members seemed to be primarily responsible for bringing patients to exam rooms and taking vital signs. Several participants also noted an increase in administrative staff, in mid-level providers like nurse practitioners (NPs) and physician assistants (PAs), and in medical students and interns. However, a smaller number of participants believed there had been no change in the staffing at their PCP's or specialists' offices, or believed there had been a decrease in staff recently. Some thought that their PCP's office could benefit from additional staff: "There's still a problem waiting to check in and waiting for the phone. They need to expand their support personnel."

Health information technology. In Phase I of CCI, practices were required to use an electronic disease registry for the targeted patient populations (adults with diabetes and children with asthma). Although practices were not required to have an EHR, many already did. Because the NCQA 2008 recognition tool placed a heavy emphasis on EHR and health IT capabilities, practices had to improve in this area to achieve higher levels of PCMH recognition.

During Phase II of CCI, some practices reported working to use their EHRs and disease registries more effectively (e.g., creating templates for target populations to support more consistent delivery of evidence-based care). Practices also were trying to generate more meaningful reports on their patients and performance using their EHRs. By the third year of the demonstration, practices were increasingly trying to extract data from their EHRs to identify high-risk patients and to use their EHRs for screening and templates. Some practices also incorporated new EHRs or registries that improved their ability to collect, use, and report better data. In the MAPCP Demonstration provider survey (described below), 96 percent of participating practices reported a high level of EHR adoption.

Some practices also reported using their EHRs to exchange information with hospitals, particularly if they were part of a larger delivery system and had the same EHR. Although Pennsylvania was actively engaged in a number of HITECH areas at the time (e.g., the Medicaid EHR Incentive Program, Beacon grants), those programs were not mentioned explicitly as

helping practices upgrade their EHR capacity and exchange data. By our Year Two site visits, many practices faced challenges in exchanging data with external providers. EHRs had not been particularly effective for tracking care transitions or developing a registry for high-risk patients unless the practice was part of a larger health delivery system.

Small practices, particularly those not part of a larger health care delivery system, had difficulty using their health IT systems because they lacked internal IT support. Even for practices with IT support, it took time for staff to become comfortable with new features or even to become aware that certain features were available.

Patient awareness of patient-centered medical home. Overall, participants had little to no awareness of the demonstration or PCMH concept before the focus group. During the focus groups, participants generally felt it was a good idea, and most (but not all) agreed that they were already receiving PCMH-type services from their PCP and specialists, especially in regard to the way their PCPs and specialists communicated with each other. Some participants felt their practices had evolved into PCMHs in the past few years, whereas others said they had been receiving PCMH services “for a long time.”

Several participants were skeptical, however, of the PCMH idea, and one said the success of the concept would depend on “the human element” and might not necessarily be better than the status quo. Many thought the term sounded like it referred to home health care. As one participant said, “I think they need to reexamine the name.” Others were worried the PCMH would lead to “more bureaucracy.” Some participants asserted that a person had to meet special eligibility criteria to receive PCMH services, and one participant believed that a person must be dually eligible for Medicaid and Medicare to meet PCMH needs criteria.

Patient awareness of practice changes. Focus group participants noticed practice changes across several dimensions, including EHR use, staffing changes, and accessibility. Participants noticed that their PCPs were using EHRs more frequently over the past several years, and they had mixed feelings about this development (on net, positive reactions). Some participants reported that they were more likely to see an NP or PA now, compared with a few years ago. Some did not mind this shift, but others were concerned. Participants generally felt that their PCPs and office staff were getting friendlier, that getting an appointment was easier, and that wait times had decreased. Patients felt that their PCPs were communicating more effectively with the ER and specialists, and that this was a relatively recent development, perhaps in conjunction with EHR development. Participants also reported being asked to fill out patient experience surveys more now than in the past. One participant also reported expanded operating hours.

11.2.2 Technical Assistance

As part of Phase II of CCI, practices were required to engage in several types of technical assistance activities, including learning collaboratives and practice coaching. During the first year of the demonstration, practices we interviewed found the learning collaboratives and practice coaching useful but time consuming. A minority of practices with whom we spoke did not agree with the focus of the learning collaboratives and practice coaching on the management of high-risk patients, noting that some patients were too high-risk to see improvements, and that

there were additional ways to achieve desired results (e.g., having more care provided by primary care physicians rather than specialists). Some respondents also felt that the practice coaching was provided less frequently and largely by telephone (compared with Phase I), making the service less useful.

Over the course of the demonstration, practice staff, particularly physicians, reported that the technical assistance had become redundant and less useful to practices. Care managers, particularly those in the Southeast region who were newer to the demonstration, found the technical assistance more valuable.

During the demonstration period, practices received utilization, cost, and quality measure data from CMS through the MAPCP Demonstration Web Portal and from certain payers. Data provided from health insurance plans to practices varied by plan. Throughout the demonstration, practices reported wide variation in the usefulness and use of payers' reports, although the CMS data generally were viewed more positively than reports from other payers. Some practices found payers' reports very helpful for identifying high-risk patients in need of care management services. Other practices felt that the reports were too long to be useful, or that they had less accurate clinical information than the practices had themselves.

11.2.3 Payment Supports

Practices reported using CCI Phase II PMPM payments to participate in required activities (e.g., renewing NCQA recognition, participation in learning collaboratives, and practice audits), support care managers, and engage in other transformation activities. In later years, when the PMPM payments were reduced, practices felt that the demonstration payments were insufficient to support care managers and other investments for practice transformation, especially because payer attrition reduced the total dollars available.

As the MAPCP Demonstration continued, many practices became more convinced that the payment level and structure was flawed. Practices in both regions struggled to understand why the quantitative data did not show sufficient improvement to warrant shared savings payments from most payers, including Medicare, in the demonstration's first 2 years. Many reasons were posited—comparison with other PCMHs by CMS, methods used to select the PCMH comparison practices, lack of transparency in shared savings calculations by private payers, risk-adjustment methods, and patient turnover.

Most practices did not receive shared savings payments for their performance in Year One and Year Two, and they faced a 15 percent reduction in PMPM payments for practice transformation and care management services in Year Two and Year Three.⁷ The PMPM payment cuts, combined with a lack of shared savings payments and payer attrition, left many practices feeling as though they were not being compensated for all of the activities they engaged in as CCI participants. Further, some plan and provider respondents noted that the shared savings model resulted in payment lags and a relatively high degree of uncertainty for practices. Because shared savings payments were calculated annually and practices were uncertain about their

⁷ Year Three shared savings results were not announced until well after the demonstration ended.

likelihood of receiving shared savings payments, practices were placed in a position where they were making investments without knowing if they would be recouped.

Some practices also felt that the payment methodology rewarded more poorly performing practices, rather than high-performing ones, because shared savings calculations were based on improvement on specific quality measures and costs, regardless of practices' starting point. It may have been difficult for practices already performing well relative to state or national benchmarks to achieve even modest improvements, whereas practices performing poorly were more likely to "pick the low-hanging fruit" and qualify for the shared savings payments by meeting quality improvement targets.

Payers had some discretion in calculating the shared savings payments, and each used a somewhat different approach. Practices did not fully understand the process and perceived it as lacking transparency. One respondent worried that some differences in shared savings payments resulted from variations in methodology, rather than practice performance on cost and quality metrics. Several practice respondents felt frustrated that they could not verify payers' shared savings calculations themselves. Payers felt that they could not be more transparent about their shared savings calculations without sharing sensitive information about payments to other providers.

Many practices felt frustrated that payers did not provide more frequent information on practice spending performance. Although CMS reports provided this information, access to and use of those reports by practices was relatively low. Several practices felt that payers should have provided feedback on the costs incurred by their patients on a quarterly or monthly basis, so that they could make midyear corrections, if needed, to achieve shared savings by the end of the year. Several practices wanted payers to make suggestions for how practices could achieve cost savings (e.g., identifying less expensive hospitals or less expensive care settings to which practices could steer their patients). One practice respondent felt that, in the absence of information on the cost services in hospitals and other settings, shared savings calculations should have been based on utilization rather than cost.

Finally, some respondents from pediatric practices felt that their care-coordination fees were not high enough. Because the structure of the care-coordination fee was age-based and not risk-adjusted, pediatric practices received lower per-patient payments to manage their patient population than did adult practices.

One positive aspect of the shared savings model noted by some payers and many practices is that it moved payers and providers from an adversarial to a more collaborative relationship that produced positive changes, such as shared goals of improving quality and reducing cost, information sharing, and sharing tools and resources (e.g., care management).

11.2.4 Practices' Reported Adoption of the PCMH Model Near the End of the Demonstration

In this section, we present findings from our practice transformation survey conducted among participating demonstration practices. The survey asked providers to identify which activities associated with the PCMH model of care their practice regularly engaged in. For each question, providers were presented with three answer options: one representing a low level of

adoption of a particular PCMH activity; one representing a moderate level of adoption; and one representing a high level of adoption of the activity. Survey findings presented in **Table 11-8** and **Table 11-9** focus on the percentage of providers who reported a high level of adoption of PCMH activities, with results that are significantly different from the average for the eight MAPCP Demonstration states noted.

The Overall Practice Transformation Index reported in **Table 11-8** is the percentage of activities adopted at a high level, out of the 23 PCMH activities asked about in the survey. This table also identifies the percentage of PCMH activities that respondents reported engaging in at a high level within six PCMH domains (e.g., for the subset of survey questions that asked about access to care). The percentage of PCMH activities that Pennsylvania providers reported engaging in was comparable to the average percentage across the eight MAPCP Demonstration states, both overall and within five of the six PCMH domains. None of the activities that Pennsylvania providers reported engaging in were significantly higher than the eight-state MAPCP Demonstration average.

Table 11-8
Pennsylvania: Percentage of PCMH activities adopted at a high level:
MAPCP Demonstration provider survey

	% in Pennsylvania (N = 46 respondents)	% of PCMH activities in all MAPCP Demonstration states (N = 1,022 respondents)¹
Overall Practice Transformation Index (% of activities adopted at a high level, out of 23 PCMH activities)	77	72
Practice Transformation Index by domain (Average % of activities adopted at a high level, within each survey domain)		
Access to care	83	76
Care management (without involvement of other providers)	83	78
Care coordination (involving other health care providers)	69	68
Patient engagement and self-management	64	57
Quality improvement	77	76
Health IT	96	93

NOTES:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

HIT = health information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

Table 11-9 reports the percentage of responding providers who reported a high level of adoption for each of the survey's 23 PCMH activities. The table indicates that the percentage of providers in Pennsylvania who reported high-level adoption of particular PCMH activities was comparable to the MAPCP Demonstration eight-state average for 20 of the 23 PCMH questions in our survey. The providers in Pennsylvania performed better than the eight-state average for three activities:

- Using alternative types of contact (e.g., e-mail, Internet, text messaging) for communications between the practice team and patient, with responses in a timely and consistent manner (83% versus 71%);
- Organizing office visits around the specific reason for the patient's visit, with consistent attention to ongoing chronic care and prevention needs (93% versus 84%); and
- Providing self-management support for chronic conditions through goal setting and action planning (74% versus 57%).

Table 11-9
Pennsylvania: Percentage of respondents reporting a high level of
adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Pennsylvania (N = 46 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Access to care (% of providers reporting a high level of adoption of PCMH activities)		
Appointment systems... Have prescheduled appointments, the ability to schedule urgent visits, and the capacity for walk-ins or same-day visits.	93	90
Respond to urgent problems... Clinician/practice team has a system in place to triage patient problems through phone or e-mail communications or face-to-face visits, with same-day appointments usually available.	83	86
After-hours access (24 hours, 7 days a week) to practice team for urgent care... Is available by phone for urgent care, and in-person during some evenings or weekends. The practice actively participates in coordinating ER care, and follows up with patients after visits to the ER.	76	69
Alternate types of contact (e-mail, Web, text message) with practice team... Are a core component of patient-practice team communication, and responses are provided within a timely and consistent timeframe.	83*	71
Patient-clinician continuity... For ambulatory/outpatient care, patients are assigned to a specific clinician and care team, and are encouraged to seek care from this designated clinician and practice team. The practice monitors patients' care during hospital and post-acute facility stays, and is involved as needed.	78	74
Care management (without involvement of other providers) (% of providers reporting a high level of adoption of PCMH activities)		
Registries... Are available to practice teams and routinely used for previsit planning, reminders to providers, patient outreach, and population health monitoring across a comprehensive set of diseases and high-risk patients.	55	59

(continued)

Table 11-9 (continued)
Pennsylvania: Percentage of respondents reporting a high level of
adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Pennsylvania (N = 46 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Visit focus... Is organized around the specific reason for a patient's visit, but with consistent attention to ongoing chronic care and prevention needs (e.g., through the use of EHR care alerts).	93*	84
Medication review for patients on multiple medications... Is done on a regular basis for patients during care transitions, when patients receive new medications, and during all regularly scheduled visits.	100	97
Clinical management for complex patients... Is accomplished by identifying patients for whom care management might be beneficial. The practice actively coordinates care management with other providers and caregivers, and provides educational resources and ongoing support to assist with self-management.	91	87
Preventive screenings... Are delivered at visits specifically scheduled for this purpose. Practice staff also identify needed preventive services at other visits. In addition, registries or other clinical decision support tools are used to identify patients who have not received recommended preventive services, and reminders are given to patients to schedule these.	94	78
Tracking and follow-up with patients about test results... Is consistently done.	75	87
Care coordination (involving other health care providers) (% of providers reporting a high level of adoption of PCMH activities)		
Tracking and follow-up with patients for important referrals... Is consistently done.	70	75
Relationships with commonly referred-to practices... Are formalized with practice agreements and referral protocols.	48	50
Patient referral information to specialists, hospital, and other medical care providers... Is consistently transmitted by the practice. Referrals contain reason for referral, clinical information relevant to the referral (e.g., test results, medical history), and core patient information (e.g., medications, allergies).	78	91
Patients in need of behavioral health support or community-based resources... Are referred to partners with whom the practice has established relationships, relevant patient information is communicated to them, and timely follow-up with patients occurs where necessary.	63	64

(continued)

Table 11-9 (continued)
Pennsylvania: Percentage of respondents reporting a high level of
adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Pennsylvania (N = 46 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Follow-up with patients seen in the ER or hospital... Is done routinely after receiving notification from the ER or hospital. The practice has agreements in place with the hospitals and facilities that patients most commonly use. The practice tracks patients and follows up with them either by visit, phone, or other forms of communication within a short and specified timeframe.	87	80
Patient engagement and self-management (% of providers reporting a high level of adoption of PCMH activities)		
Care plans for patients with chronic conditions... Are developed collaboratively with patients and families, recorded in patient medical records, include self-management and clinical goals, are used to guide ongoing care, and are given to the patient and family to support their care.	67	63
Assessing patient and family values and preferences... Is systematically done for all patients with significant health problems or who articulate values and preferences themselves. The practice team incorporates patient preferences and values into planning and organizing care.	50	51
Involving patients and caregivers in health care decision-making... Is a priority and is systematically done. Patients are supported to consider the likely outcomes of treatment options through the use of clinical decision aids, motivational interviewing, and teach-back techniques.	63	67
Patient self-management support for chronic conditions... Is provided through goal-setting and action planning with members of the practice team trained in patient education, empowerment, and problem-solving methodologies. Ongoing support is available through individualized care or group interventions.	74*	57
Quality improvement (% of providers reporting a high level of adoption of PCMH activities)		
Quality improvement activities... Are based on systematic quality improvement approaches (e.g., plan-do-study-act cycles, or tracking performance on quality measures) and are used in meeting organizational goals.	85	81
Feedback to the practice from patients and their families... Is regularly collected through a formal approach (e.g., patient survey, focus group) and through specific patients' concerns, and is incorporated into practice improvements.	70	79

(continued)

Table 11-9 (continued)
Pennsylvania: Percentage of respondents reporting a high level of
adoption of PCMH activities:
MAPCP Demonstration provider survey

Survey question	% in Pennsylvania (N = 46 respondents)	% in all MAPCP Demonstration states (N = 1,022 respondents) ¹
Health IT (% of providers reporting a high level of adoption of PCMH activities)		
EHRs... Are used for basic functions, plus more advanced functions such as clinical decision support (e.g., medication guides/alerts, preventive services alerts, clinical guidelines) and generating quality measure data for quality improvement purposes.	96	93

NOTE:

¹ Unweighted average of the state averages for the eight MAPCP Demonstration states.

EHR = electronic health record; ER = emergency room; IT = information technology; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significantly different from the average for all MAPCP Demonstration states at the 10 percent level.

11.2.5 Discussion of Practice Transformation

One of the most significant changes for practices in the transition from Phase I to Phase II of CCI was the de-emphasis of NCQA PPC® PCMH™ recognition and the introduction of mechanisms developed by the state and payers (annual care management audits, practice transformation assessment, required submission of practice narratives) to ensure that meaningful practice changes—rather than simply paper compliance with NCQA PPC® PCMH™ requirements—occurred. Some plan and practice respondents in the first year felt that the new mechanisms for assessing practice transformation might be too burdensome for practices and could stifle innovation, but respondents generally viewed these changes positively. Some respondents—particularly some payers—believed that the practice assessment tool, the care management audits, and the requirements for reporting data to PAFP contributed to practices becoming more engaged and more accountable to standards, deadlines, cost, and quality performance.

Another significant change from Phase I to Phase II of CCI was the use of shared savings payments and the related reductions in PMPM payments in later years. The uncertainty about shared savings and limited-to-no shared savings payments from most payers in Years One and Two were a source of ongoing concern among many participants during the demonstration period. The limited shared savings payments and reductions in PMPM payments resulted in significant morale issues and concerns for practices about continuing their participation in the demonstration and what to do after the demonstration ended. Many felt that they were being asked to “work harder for less.” Practices stayed motivated to continue participating and finish the demonstration strongly because of the feeling that many of the changes were the right thing to do for patients, that it was the direction in which payment and delivery reform were headed, and that the potential for a new and different phase through a CMS SIM Implementation award

was intriguing to them.⁸ Many practices believed that they had made real positive changes to their structures and processes that improved patient care, through such things as care coordinators, team-based care, better use of their EHRs and disease registries, data sharing, and measuring and monitoring utilization and quality data. Despite concerns, the shared savings payment methodology moved payers and providers to a more collaborative relationship that produced positive changes, such as shared goals of improving quality and reducing cost, information sharing, and more sharing of data, tools, and resources (e.g., care management).

11.3 Quality of Care, Patient Safety, and Health Outcomes

This section describes the changes that practices made aimed at improving care quality, patient safety, and patient health outcomes (*Section 11.3.1*); impacts on utilization of services and clinical quality (*Section 11.3.2*); and a synthesis of these findings (*Section 11.3.3*).

11.3.1 Implementation of State Initiative and Practice Features Expected to Improve Quality of Care, Patient Safety, and Health Outcomes During the Evaluation Period

Phase II of CCI includes several features designed to improve the quality of care for patients. As described in *Section 11.2*, practices were required to have an electronic disease registry, which allowed them to track patients with certain conditions, such as diabetes. During the first year of the MAPCP Demonstration, practices were encouraged to use their patient registries as a tool for conducting population-based tracking and analysis, and training taught them how to develop their population management capabilities. Some practices reported that their care managers and primary care physicians were focused on identifying high-risk patients in need of care management services by tracking hospitalizations and ER visits and using other information available through their patient registries. To help with their efforts, some payers and providers supplied practices with lists of patients who were hospitalized or visited the ER.

During the demonstration's first year, the state also tracked a range of quality measures. PAFP was responsible for management of the quality measures data set on behalf of the state in both phases of CCI. In Phase II, practices submitted data related to the state's 24 performance measures on a monthly basis. The performance measures included three domains: prevention, management of chronic conditions, and clinical care management. A subset of the PAFP measures was used in the shared savings model.

Improving patient safety also was a focus of Phase II. During Year One, practices were encouraged to provide medication management services as part of their care management approach. Some practices reported that they were conducting medication reconciliation with their patients. Care managers in these practices tended to reconcile patients' medication during regularly scheduled office visits or as a follow-up to a hospital discharge or ER visit.

By our Year Two site visit, practices that were already engaged in activities designed to improve quality and patient outcomes and reduce medical errors reported continuing to do so, and more practices began these efforts. By our Year Three site visits, many practices reported

⁸ CMS announced the recipients of the Round Two SIM awards in December 2014, the last month of Phase II of CCI. Pennsylvania was awarded a SIM design grant, not a test grant.

continuing these activities, and some practices became more proactive in population management, medication reconciliation, and screening and providing resources for mental health, as compared with previous years. For example, one practice reported that its EHR had a pop-up function that automatically opened up the patient's medication list (if the patient had one) when the user attempted to close out the patient's medical chart.

This focus on quality improvement activities was reflected in CCI practice responses to the provider survey, beneficiary responses to the CAHPS survey, and focus group participants' comments during the focus group discussions. The provider survey found that the percentage of providers in Pennsylvania who reported engaging in quality improvement activities was comparable to the MAPCP Demonstration eight-state average. Specific quality improvement activities asked about in the survey were using systematic quality improvement approaches to meet organizational goals and using formal methods, such as patient surveys or focus groups, to collect patient feedback regularly and incorporate this feedback into practice improvements. Approximately 97 percent of CAHPS beneficiary survey respondents felt that their provider "usually" or "always" seemed to know information about their medical history.

11.3.2 Impacts on Quality of Care, Patient Safety, and Health Outcomes as Measured Through December 2014

CCI was expected to improve quality-of-care and health outcomes. This section reports covariate-adjusted differences in selected Medicare quality-of-care and health-outcome measures between CCI and two CG: PCMHs and non-PCMHs. Although one Medicaid managed care plan participating in CCI, AmeriHealth, provided Medicaid enrollment and managed care encounter data, we determined that the claims data related to quality of care were incomplete, so we did not report on these outcomes.

- **Table 11-10** reports on changes in six process-of-care measures among Medicare beneficiaries with diabetes and on one process-of-care measure for patients with ischemic vascular disease (IVD).

We examined the probability of receiving the recommended services. These dichotomous (i.e., yes/no) indicators were modeled using logistic regression. Estimates in these tables are interpreted as the percentage point difference associated with CCI in the likelihood of receiving the service in either Year One, Year Two, Year Three, or all three years. A *negative* value corresponds to a *decrease* in the likelihood of receiving care compared with the CG, whereas a positive value corresponds to an *increase* in the likelihood of receiving care compared with the CG. CCI beneficiaries are expected to have positive values for all indicators, except the "none" indicator in diabetes care. We describe statistically significant *overall* findings for each results table. We also note when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend. In addition to examining processes of care, which are based largely on evidence-based guidelines, we also evaluated patient outcomes among Medicare beneficiaries attributed to CCI practices and comparison practices using potentially preventable hospitalizations as a proxy for health outcomes. This analysis was limited to Medicare beneficiaries only. Some patient medical events, such as those measured with Prevention Quality Indicators (PQIs), may be preventable with adequate access to high-quality primary care services. We defined avoidable catastrophic

events as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis. The PQI acute composite measure included preventable hospitalizations for dehydration, urinary tract infection, or bacterial pneumonia. The PQI chronic composite measure included preventable hospitalizations for diabetes short-term or long-term complications, lower-extremity amputation among patients with diabetes, uncontrolled diabetes, angina without procedure, chronic obstructive pulmonary disease (COPD) or asthma in older adults, asthma in younger adults, hypertension, and congestive heart failure (CHF). The PQI overall composite measure included preventable hospitalizations for all of these conditions.

- **Table 11-11** reports on differences in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

Estimates in this table are interpreted as the difference in the rate of events associated with CCI in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a positive value corresponds to an *increase* in the rate of events compared with the CG. If CCI was associated with improvements in the quality of and access to ambulatory care, we expect demonstration beneficiaries to have a reduction (i.e., a significant negative value) in the rate of these avoidable hospitalizations.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 11.3.3**.

Table 11-10
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 6,470)	0.37	[-0.40, 1.14]	1.29*	[0.40, 2.19]
Year Two (N = 4,665)	-0.79	[-1.79, 0.20]	0.31	[-1.10, 1.73]
Year Three (N = 3,039)	-0.28	[-1.68, 1.12]	-1.18	[-2.98, 0.62]
Overall (N = 7,002)	-0.15	[-0.79, 0.49]	0.44	[-0.59, 1.47]
Retinal eye examination				
Year One (N = 6,470)	1.23	[-0.07, 2.53]	1.18	[-0.56, 2.93]
Year Two (N = 4,665)	-1.98*	[-3.76, -0.20]	-0.18	[-2.31, 1.95]
Year Three (N = 3,039)	-2.77*	[-5.46, -0.08]	-1.18	[-4.18, 1.83]
Overall (N = 7,002)	-0.68	[-1.88, 0.51]	0.23	[-1.47, 1.93]
LDL-C screening				
Year One (N = 6,470)	0.96	[-0.28, 2.19]	1.94*	[0.30, 3.58]
Year Two (N = 4,665)	-0.99	[-2.53, 0.56]	-0.09	[-2.22, 2.04]
Year Three (N = 3,039)	-2.71*	[-5.35, -0.07]	-1.94	[-4.85, 0.97]
Overall (N = 7,002)	-0.47	[-1.79, 0.85]	0.44	[-1.35, 2.23]

(continued)

Table 11-10 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Medical attention for nephropathy				
Year One (N = 6,470)	-4.68*	[-7.64, -1.73]	1.26	[-0.69, 3.22]
Year Two (N = 4,665)	-8.23*	[-11.71, -4.76]	-2.25	[-4.67, 0.18]
Year Three (N = 3,039)	-8.68*	[-12.86, -4.51]	-4.23*	[-7.16, -1.31]
Overall (N = 7,002)	-6.71*	[-9.95, -3.47]	-1.07	[-2.98, 0.84]
Received all 4 diabetes tests				
Year One (N = 6,470)	-2.41	[-4.87, 0.05]	0.99	[-1.26, 3.24]
Year Two (N = 4,665)	-9.07*	[-12.14, -5.99]	-2.13	[-5.22, 0.95]
Year Three (N = 3,039)	-10.03*	[-16.21, -3.85]	-6.15*	[-10.49, -1.82]
Overall (N = 7,002)	-6.24*	[-9.27, -3.20]	-1.57	[-4.00, 0.87]
Received none of the 4 diabetes tests				
Year One (N = 6,470)	-0.57*	[-0.97, -0.17]	-0.49*	[-0.92, -0.05]
Year Two (N = 4,665)	-0.31	[-0.95, 0.34]	-0.20	[-0.76, 0.35]
Year Three (N = 3,039)	0.87*	[0.29, 1.44]	0.62	[-0.11, 1.36]
Overall (N = 7,002)	-0.17	[-0.54, 0.19]	-0.16	[-0.53, 0.21]
Total lipid panel				
Year One (N = 9,912)	-0.12	[-3.24, 3.01]	0.29	[-1.27, 1.86]
Year Two (N = 7,644)	-0.20	[-3.61, 3.20]	-1.44	[-3.76, 0.88]
Year Three (N = 5,729)	0.67	[-2.88, 4.22]	-4.38*	[-7.90, -0.85]
Overall (N = 12,014)	0.05	[-3.09, 3.18]	-1.43	[-3.43, 0.58]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among CCI Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.

CCI = Chronic Care Initiative; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found some evidence that CCI impacted the likelihood of some process-of-care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 11-10** shows the following:

- The overall likelihood of receiving **medical attention for nephropathy** or **all four diabetes tests** decreased among CCI Medicare beneficiaries compared with Medicare beneficiaries assigned to PCMH comparison practices only.
- Relative to beneficiaries assigned to PCMH practices only, a negative estimate in Years Two and Three suggested a potential trend toward a decreased likelihood in **retinal eye examinations** among CCI Medicare beneficiaries, although the overall estimate was not statistically significant.

No statistically significant overall changes were observed for the measures of HbA1c testing, low-density lipoprotein cholesterol (LDL-C) screening, receipt of no diabetes tests, or total lipid panels.

Table 11-11
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
health outcomes among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 30,365)	-0.77*	[-1.50, -0.05]	-0.20	[-0.93, 0.52]
Year Two (N = 32,783)	-2.05*	[-3.20, -0.89]	-0.18	[-0.90, 0.53]
Year Three (N = 33,333)	-0.24	[-1.22, 0.73]	0.29	[-0.60, 1.19]
Overall (N = 41,636)	-1.04*	[-1.84, -0.24]	-0.03	[-0.66, 0.59]
PQI admissions—overall ²				
Year One (N = 30,365)	0.43	[-0.85, 1.70]	0.07	[-1.12, 1.27]
Year Two (N = 32,783)	-1.66*	[-2.79, -0.53]	-0.66	[-1.94, 0.63]
Year Three (N = 33,333)	-3.14*	[-4.88, -1.40]	-0.89	[-2.24, 0.45]
Overall (N = 41,636)	-1.46*	[-2.43, -0.50]	-0.50	[-1.61, 0.62]
PQI admissions—acute ³				
Year One (N = 30,365)	0.35	[-0.48, 1.19]	-0.01	[-0.61, 0.58]
Year Two (N = 32,783)	-0.03	[-0.63, 0.57]	-0.32	[-0.95, 0.30]
Year Three (N = 33,333)	-1.01*	[-1.67, -0.36]	-0.24	[-0.91, 0.43]
Overall (N = 41,636)	-0.23	[-0.72, 0.27]	-0.20	[-0.70, 0.31]

(continued)

Table 11-11 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
health outcomes among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 30,365)	0.06	[-0.61, 0.73]	0.08	[-0.71, 0.88]
Year Two (N = 32,783)	-1.59*	[-2.80, -0.39]	-0.36	[-1.35, 0.63]
Year Three (N = 33,333)	-2.05*	[-3.38, -0.72]	-0.66	[-1.67, 0.36]
Overall (N = 41,636)	-1.20*	[-2.09, -0.31]	-0.31	[-1.14, 0.51]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among CCI beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CCI = Chronic Care Initiative; CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found some evidence that CCI decreased the rates of preventable hospitalizations, although statistical significance was not seen across both CGs. Specifically, **Table 11-11** shows the following:

- The overall rate of **avoidable catastrophic events** decreased among CCI Medicare beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.
- The overall rates of **overall and chronic PQI admissions** decreased among CCI Medicare beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant overall changes were observed in the measure of acute PQI admissions.

11.3.3 Discussion of Quality of Care, Patient Safety, and Health Outcomes

The metrics for the quantitative analyses of Medicare beneficiaries discussed above relied on Medicare administrative claims data only. For most of the Medicare process of care indicators reported, there were no statistically significant findings when comparing CCI practices with the CG practices. Two Medicare indicators had results in an unexpected direction; CCI was associated with a decrease in the likelihood of receiving medical attention for nephropathy among CCI Medicare beneficiaries and a decrease in the likelihood of receiving all four diabetes tests among those beneficiaries, when compared with beneficiaries in PCMH practices. The lack of movement on the quality measures or their movement in an unexpected direction may reflect CCI's de-emphasis of practice performance on a range of process and quality measures between Phase I and Phase II. On the other hand, these findings are surprising given that the shared savings component of CCI incentivized practices to be attentive to diabetes quality-of-care measures.

In contrast, there were statistically significant findings in the expected direction for most of the estimates of health outcomes for Medicare beneficiaries (Medicaid results were not reported), when compared with beneficiaries assigned to PCMH practices. Specifically, CCI Phase II was associated with a decrease in the rate of avoidable catastrophic events and a decrease in the rates of overall and chronic PQI admissions among CCI Medicare beneficiaries. These findings are consistent with Phase II targeting high-risk patients and focused on limiting unnecessary hospital visits for that population.

11.4 Access to Care and Coordination of Care

This section describes the changes practices made aimed at improving access to care and the coordination of care (*Section 11.4.1*), impacts on access to care and coordination of care (*Section 11.4.2*), and a synthesis of these findings (*Section 11.4.3*).

11.4.1 Implementation of State Initiative and Practice Features Expected to Improve Access to Care and Coordination of Care During the Evaluation Period

Phase II practices in both regions were required to have on-site care managers, and they received a PMPM payment to cover the position. Care manager responsibilities included, but were not limited to, engaging in case review and planning, providing intensive medical and medication management services, identifying high-risk patients through risk stratification, developing and implementing care plans, and managing and tracking tests, referrals, and outcomes. One payer noted that care management was the most significant component of practice change in Phase II of CCI. Several practices said Phase II training taught them how to empower nonphysician staff as part of a care management team.

CCI's focus on the role of care managers is reflected in the results of the provider survey. With one exception, the provider survey found that the percentage of providers in Pennsylvania who reported engaging in care coordination and care management activities at a high level was

comparable to the MAPCP Demonstration eight-state average. Ninety-three percent of Pennsylvania providers reported a high level of organizing office visits around the specific reason for a patient's visit, but also consistently paying attention to ongoing chronic care and prevention needs. In contrast, on average only 84 percent of providers across all MAPCP Demonstration states reported engaging in those activities at a high level. This result may reflect CCI's long-standing focus on patients with chronic conditions (see *Section 11.7.1* for details).

Although focus group participants generally had positive views about the coordination of their care, only a few participants—either Medicaid or dually eligible beneficiaries—were receiving services through a care manager at the time of the focus group, perhaps due to CCI practices' focus on providing care management services to patients with chronic conditions rather than their entire patient panel.

Following up with patients during and after care transitions from the hospital or ER to other facilities was a main focus for care managers. This activity was sometimes dependent on whether a practice got a list of hospitalized or discharged patients from a health insurance plan or local hospital. Many practices said that their care managers tried to contact patients on their high-risk list within 24 to 48 hours of discharge. For practices that did not receive such lists, care managers tried to educate their patients to call the practice upon discharge from the hospital to schedule a follow-up appointment.

Virtually all participants were confident that their medical records were transferred between the hospital and their PCP. At the very least, participants got the sense that records were shared, even if they did not know how. They reported that their PCPs knew when they had been hospitalized, and the result of that hospitalization, and they believed it was either because the hospital "called and told [the PCP]" or through a seamless electronic transfer of information. The majority of patients appreciated that their PCP was notified of their hospitalization, and, in many cases, they were able to see their PCP while they were in the hospital.

Overall, participants were pleased with the level of coordination between their PCP and hospitals. Some focus group participants were aware of, and sometimes frustrated by, the contractual relationships between their PCPs and local hospitals that made coordination difficult. For example, one participant noted that her PCP was unable to visit her at a certain hospital because she was not on staff there. Another expressed some frustration that only one hospital in his area can perform certain cardiac procedures, and his PCP cannot work with him through that particular hospital.

Practices focused closely on improving care coordination, particularly for their high-risk patients. During our Year Three site visit, practices reported that they were reaching out to patients more proactively, particularly to manage patients at risk of ER visits and hospital or nursing home admission. Some practices also commented positively on receiving reminders in their EHR to check on certain patients and make sure they showed up for appointments.

Most participants reported that there seemed to be effective coordination between their PCP and specialists, evidenced by the fact that their PCPs were generally aware of the outcome of a specialist appointment. One participant said, "[My PCP] understands...my chronic illnesses and how they intertwine. She has to keep in communication with [specialists] and she does a

good synopsis when I come in.” Another participant agreed: “[My PCP] is really good at networking with the specialists I see, and they’re good with getting back to her with letters after my referral is done.” Fewer participants felt that communication between specialists and their PCP was not ideal, especially if the two were in different systems. For providers in the same system, however, participants were pleased at the level of coordination: “[My PCP and specialists] are all tied together, which makes it easier for [my PCP] to get information from these other doctors. They’re all computerized now and that kind of stuff, so he follows up on that. He gets letters every time I see one of the specialists, and we always discuss that when I go.” Another participant agreed: “My PCP knows what the gastro said, and what the podiatrist said. Most participants said they had visited their specialist(s) through referrals from their PCP, although several reported that they saw specialists completely independent of their PCP. Several participants recalled that they had been required to sign a waiver before their results could be shared between specialists and their PCP.

Compared with care management and coordination, CCI focused to a lesser degree on enhancing access to care for patients. Practices were required to have NCQA PPC® PCMH™ recognition, which included a set of requirements related to open access. Many participating practices already had expanded their office hours and offered open access or same-day scheduling for appointments during Phase I. Some practices educated their patients about their hours of operation by posting informational posters in waiting rooms and including the information in telephone messages that patients hear while waiting to speak with a receptionist.

Findings from the provider survey suggest that CCI practices were relatively accessible to patients even without special effort to improve access as part of CCI. Similarly, the provider survey found that the percentage of providers in Pennsylvania who reported engaging in access-to-care activities at a high level was comparable to the MAPCP Demonstration eight-state average, with one exception. Eighty-three percent of Pennsylvania providers reported a high level of use of alternative types of contacts (e.g., e-mail, Internet, text messages) between the practice team and their patients and responding in a timely and consistent timeframe; in contrast, on average only 71 percent of providers across all MAPCP Demonstration states reported engaging in those activities at a high level. CCI practices’ high use of alternative types of contact relative to the MAPCP Demonstration average may reflect the significant role played by care managers in CCI rather a specific focus on improving access.

Findings from the CAHPS PCMH survey and focus groups indicate that patients’ views on access were mixed, with patients viewing practice access for non-urgent needs more favorably than practice access for urgent care. Patients were able to make appointments for non-urgent issues with relative ease, with 95 percent of CAHPS PCMH survey respondents reporting that they were able to make appointments for routine checkups as needed. Some focus group participants mentioned that their PCPs were available only 2 or 3 days per week, but that this was fine for general checkup appointments. Several participants noted that they could usually get an appointment sooner if they were willing to see a PA instead of their usual PCP. A small number of participants said they had no issues with getting an appointment whatsoever. Some participants said they scheduled their next appointment before leaving the clinic, or later through a patient portal. Several patients mentioned getting a print-out at the end of an appointment with the summary of that day’s visit, as well as the date of their next appointment.

For urgent issues, the CAHPS survey and focus group results were mixed. Although 91 percent of CAHPS PCMH survey respondents reported being able to get needed care right away, survey respondents viewed access to practices for same-day appointments and during evenings, weekends, or holidays less favorably. Only 48 percent of respondents reported being able to obtain same-day appointments when needed and 61 percent of respondents reported that they usually or always were able to get needed care during evenings, weekends, or holidays. Most focus group participants said they could see another provider in a timely fashion, if their PCP was unavailable. A small number of participants said they could even get a same-day appointment. Others agreed that it was sometimes difficult to get timely appointments, even though their PCPs assured them that they reserved a number of appointments for urgent issues. For emergencies, many participants' PCP offices recommended the ER.

Participants offered mixed opinions on whether it had gotten easier to schedule an appointment over the past year. Several participants believed that it had gotten easier to get an appointment within the past year or so, but others disagreed. For appointments with specialists, most participants reported wait times of “a couple months,” but some could get in within “a few weeks,” or even sooner, if there had been a cancellation. Several participants agreed that getting a referral through their PCP resulted in a faster process for getting an appointment with a specialist.

In general, patients felt that wait times were reasonable—usually not longer than 20 minutes—and several noted that wait times had decreased in recent years. One participant noted that wait times had gotten so short that “they don’t even need magazines on the chairs.” Another pointed out that wait times at the PCP office were shorter than at urgent care or the ER. Participants hypothesized that shorter wait times might be a result of more staff. A minority of participants reported relatively longer wait times, especially late in the morning or late in the afternoon.

CCI did not focus much on improving practices' links to their communities and to community-based supports and organizations, although the participation agreement for Phase II did specify that one care manager responsibility was to identify available community resources. Although practices generally did not make many explicit links to community-based supports and organizations, some practices in smaller communities were knowledgeable about local community resources and had success in reaching out to them. Some practices reported increasing efforts to coordinate with mental health centers. One pediatric practice reported that it was informally coordinating with a Medicaid mental health provider and a commercial mental health provider in the community and seeking ways to address emergency care. An adult practice held monthly mental health meetings at nearby clinics. Several practices reported using social workers to address the needs of their patients. For example, a pediatric practice worked with a social worker to improve care coordination for behavioral health. The practice cited the social worker's established relationships with behavioral health care providers as very helpful and her work coordinating care for the practice's Medicaid population's behavioral health issues as a significant new activity.

Most focus group participants reported that they had never had a discussion with their PCP about financial assistance, housing assistance, or nonmedical supports, but a few had worked with their PCP to get care management assistance. One participant said that because of

her arthritis, she was unable to get groceries. Her PCP wrote a letter that allowed her to receive help from a nurse's aide, who eventually connected her with a care manager. One participant was pleased when her PCP informed her that her family was eligible to receive respite care. Another participant described how her PCP provided her with printed resources about housing support when she discovered her house had asbestos.

11.4.2 Impacts on Access to Care and Coordination of Care

CCI was expected to improve access to and coordination of care. This section reports covariate-adjusted differences in selected Medicare and Medicaid access-to-care and care-coordination measures between CCI and two CGs: PCMHs and non-PCMHs.

- **Table 11-12** reports on changes in seven access-to-care and care-coordination measures among Medicare beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the Continuity of Care (COC) Index.
- **Table 11-13** reports on changes in five access-to-care and care-coordination measures among Medicaid beneficiaries: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

CCI beneficiaries were expected to increase their utilization of primary care services and decrease their utilization of medical and surgical specialist services relative to CG beneficiaries after the start of the demonstration. We also analyzed two outcomes related to coordination of care following hospital discharge: the rate of follow-up visits within 14 days after discharge and the rate of unplanned readmissions within 30 days after discharge. The rate of follow-up visits was expected to increase and the rate of unplanned readmissions was expected to decrease under CCI. These measures of visits and readmissions are rates of events per 1,000 beneficiary quarters or per 1,000 beneficiaries with a live discharge. Therefore, estimates in these tables are interpreted as the difference in the rate of events associated with CCI in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the rate of events compared with the CG. The follow-up visit rate was analyzed only for Medicare beneficiaries, and unplanned readmissions within 30 days after discharge were analyzed for Medicare beneficiaries and adult Medicaid beneficiaries, but not child Medicaid beneficiaries. Further, the non-elderly Medicaid adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.

We also assessed continuity of care using an index that is a measure of the concentration of visits among providers in the practice that is the beneficiary's usual source of care or to whom the beneficiary was referred by a provider in that practice. Having a higher concentration of visits in the PCMH or by referral from a PCMH provider is assumed to strengthen the relationship between patient and provider, enhance communication among a patient's providers, and promote coordinated treatment across providers with consistent medical management plans. The value of the COC Index, which is measured annually, ranges from 0 to 1. CCI beneficiaries were expected to have higher values on the index. Due to limitations in the Medicaid claims data, the continuity-of-care measure was analyzed only for Medicare beneficiaries. We also analyzed the number of primary care visits per year as a percentage of the total number of ambulatory care visits per year. A higher percentage indicates greater use of primary care services relative to specialist services.

For the Medicare analysis, values for primary care visits as a percentage of total ambulatory care visits and the COC Index were categorized by quintiles of the outcome distribution. The lowest (first) quintile corresponds to a low percentage of primary care visits and low continuity of care. The highest (fifth) quintile corresponds to a high percentage of primary care visits and high continuity of care. For simplicity and ease of interpretation, we present results only for the change in the likelihood of being in the upper and lower quintiles. Estimates for these outcomes are interpreted as the percentage point difference associated with CCI in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.

Among Medicaid beneficiaries who were adults, the percentage of total ambulatory care visits in primary care settings was high. Therefore, we categorized the outcome as follows: fewer than 70 percent of total visits in primary care settings, at least 70 percent but fewer than 100 percent of total visits in primary care settings, and exactly 100 percent of total visits in primary care settings. Estimates for these outcomes are interpreted as the percentage point difference associated with CCI in the probability of observing a value in each category. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG, whereas a *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. Among Medicaid beneficiaries who were children, the average percentage of total ambulatory care visits in primary care settings was close to 100 percent; given the minimal variation, this outcome was not analyzed for children.

Results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 11.4.3**.

Table 11-12
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 30,365)	60.97	[-17.93, 139.88]	47.71*	[8.47, 86.95]
Year Two (N = 32,783)	42.69	[-24.08, 109.47]	46.01*	[4.46, 87.55]
Year Three (N = 33,333)	-21.92	[-95.06, 51.23]	13.48	[-35.87, 62.84]
Overall (N = 41,636)	27.53	[-42.72, 97.78]	35.92	[-5.43, 77.26]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 30,365)	-18.46	[-51.47, 14.54]	-29.87*	[-58.18, -1.56]
Year Two (N = 32,783)	-4.48	[-58.19, 49.24]	-27.56	[-66.37, 11.24]
Year Three (N = 33,333)	10.24	[-57.31, 77.78]	-7.26	[-46.82, 32.30]
Overall (N = 41,636)	-4.24	[-54.12, 45.64]	-21.67	[-54.95, 11.61]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 30,365)	-5.13	[-10.50, 0.24]	-5.09	[-11.09, 0.91]
Year Two (N = 32,783)	0.08	[-6.75, 6.90]	-7.01	[-14.73, 0.72]
Year Three (N = 33,333)	0.90	[-8.17, 9.97]	-5.41	[-14.95, 4.13]
Overall (N = 41,636)	-1.36	[-6.97, 4.26]	-5.86	[-12.60, 0.88]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 32,078)				
1st quintile	-0.27	[-1.92, 1.37]	-1.17*	[-2.06, -0.28]
5th quintile	0.26	[-1.31, 1.84]	1.13*	[0.24, 2.03]
Year Two (N = 23,783)				
1st quintile	-0.88	[-3.50, 1.74]	-1.76*	[-2.89, -0.62]
5th quintile	0.73	[-1.37, 2.82]	1.45*	[0.52, 2.38]
Year Three (N = 16,465)				
1st quintile	1.75	[-3.45, 6.95]	0.35	[-1.26, 1.95]
5th quintile	-1.35	[-5.62, 2.92]	-0.26	[-1.47, 0.95]
Overall (N = 34,468)				
1st quintile	-0.01	[-2.75, 2.72]	-1.02	[-2.03, 0.00]
5th quintile	0.05	[-2.28, 2.38]	0.92*	[0.04, 1.80]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 4,596)	38.71*	[12.06, 65.36]	46.87*	[21.63, 72.12]
Year Two (N = 4,528)	74.89*	[18.95, 130.84]	40.76*	[12.66, 68.86]
Year Three (N = 3,379)	59.69	[-15.09, 134.47]	7.10	[-26.42, 40.63]
Overall (N = 10,002)	57.38*	[10.97, 103.78]	34.37*	[14.24, 54.50]

(continued)

Table 11-12 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to
care and coordination of care among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 5,459)	0.98	[-17.62, 19.58]	-3.88	[-23.78, 16.03]
Year Two (N = 5,374)	-4.75	[-25.17, 15.66]	-5.95	[-24.23, 12.33]
Year Three (N = 4,086)	-2.36	[-19.27, 14.55]	10.62	[-9.49, 30.73]
Overall (N = 11,588)	-1.98	[-16.33, 12.37]	-0.87	[-16.32, 14.58]
COC Index (higher quintile = better continuity of care)				
Year One (N = 34,508)				
1st quintile	-0.39	[-1.22, 0.43]	-1.23*	[-2.17, -0.29]
5th Quintile	0.45	[-0.51, 1.40]	1.38*	[0.30, 2.45]
Year Two (N = 25,935)				
1st quintile	-1.71*	[-3.24, -0.17]	-2.49*	[-4.13, -0.85]
5th quintile	1.87*	[0.13, 3.62]	2.68*	[0.88, 4.48]
Year Three (N = 18,851)				
1st quintile	-1.03	[-3.89, 1.84]	-2.07	[-4.25, 0.11]
5th quintile	1.08	[-1.89, 4.05]	2.09	[-0.18, 4.36]
Overall (N = 36,827)				
1st quintile	-0.97	[-2.24, 0.29]	-1.84*	[-3.20, -0.48]
5th quintile	1.06	[-0.35, 2.47]	1.97*	[0.49, 3.46]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among CCI Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with CCI in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found that CCI impacted several of the access-to-care and care-coordination measures, with impacts seen primarily when CCI beneficiaries were compared with beneficiaries assigned to non-PCMH practices. Specifically, **Table 11-12** shows the following:

- **Primary care visits as a share of total visits** increased among CCI Medicare beneficiaries compared with beneficiaries assigned to non-PCMH practices. Specifically, CCI increased the *overall* likelihood that a demonstration beneficiary's primary care visits as a percentage of total visits was in the highest quintile. The uppermost quintile represents beneficiaries who had the highest percentage of visits in the primary care setting, whereas the lowest quintile represents beneficiaries who had the lowest percentage of visits in the primary care setting.
- The *overall* rate of **follow-up visits within 14 days after discharge** increased among CCI Medicare beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- **Continuity of care**, as measured by concentration of visits, increased among CCI Medicare beneficiaries compared with beneficiaries assigned to non-PCMH practices. Specifically, CCI decreased the *overall* likelihood that a demonstration beneficiary's COC Index was in the lowest quintile and increased the *overall* likelihood that the COC Index was in the highest quintile. The highest quintile represents beneficiaries whose ambulatory visits were most concentrated with their attributed practice providers or providers referred by their attributed practice providers, whereas the lower quintile represents beneficiaries whose visits were least concentrated with their attributed practice providers and referred providers.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits and 30-day unplanned readmissions.

Table 11-13
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care
among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits										
Year One	21,015	0.42	[-2.50, 3.33]	-1.44	[-4.23, 1.36]	12,724	-9.28*	[-16.82, -1.74]	DNC	DNC
Year Two	17,867	0.69	[-2.53, 3.90]	-0.85	[-3.68, 1.98]	8,053	-8.33	[-17.10, 0.45]	DNC	DNC
Year Three	15,560	1.24	[-2.21, 4.69]	-2.19	[-5.48, 1.10]	6,833	-6.35	[-15.28, 2.58]	DNC	DNC
Overall	29,595	0.73	[-2.22, 3.69]	-1.44	[-4.24, 1.36]	16,330	-8.29*	[-16.23, -0.35]	DNC	DNC
Medical specialist visits										
Year One	21,015	1.07*	[0.47, 1.67]	0.36	[-0.31, 1.02]	12,724	-3.26	[-7.80, 1.28]	-1.87	[-4.10, 0.36]
Year Two	17,867	0.88*	[0.10, 1.67]	0.40	[-0.33, 1.14]	8,053	-2.49	[-8.54, 3.57]	-1.00	[-3.61, 1.60]
Year Three	15,560	1.01*	[0.34, 1.67]	0.33	[-0.15, 0.81]	6,833	-3.29	[-12.29, 5.70]	-0.40	[-3.05, 2.24]
Overall	29,595	0.99*	[0.40, 1.58]	0.37	[-0.19, 0.92]	16,330	-3.02	[-8.94, 2.89]	-1.25	[-3.61, 1.11]
Surgical specialist visits										
Year One	21,015	0.09	[-0.02, 0.19]	0.03	[-0.04, 0.11]	12,724	-0.58	[-1.76, 0.60]	0.11	[-0.59, 0.81]
Year Two	17,867	0.07	[-0.03, 0.16]	-0.01	[-0.08, 0.07]	8,053	-0.35	[-1.46, 0.76]	0.02	[-0.68, 0.73]
Year Three	15,560	0.14*	[0.05, 0.23]	-0.02	[-0.10, 0.06]	6,833	-0.31	[-1.79, 1.16]	0.44	[-0.35, 1.23]
Overall	29,595	0.10*	[0.02, 0.17]	0.00	[-0.05, 0.06]	16,330	-0.44	[-1.54, 0.65]	0.16	[-0.51, 0.83]

(continued)

Table 11-13 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care
among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits as percentage of total visits (% PC)										
Year One										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	3,986	-4.49	[-14.09, 5.11]	1.58	[-2.85, 6.01]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		1.03	[-1.43, 3.50]	-0.27	[-1.00, 0.46]
% PC = 100%		N/A	N/A	N/A	N/A		3.46	[-3.71, 10.62]	-1.31	[-5.03, 2.41]
Year Two										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	2,378	-10.71*	[-17.01, -4.40]	0.59	[-5.26, 6.44]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		3.07*	[0.77, 5.37]	-0.12	[-1.25, 1.02]
% PC = 100%		N/A	N/A	N/A	N/A		7.64*	[3.46, 11.82]	-0.47	[-5.19, 4.25]
Year Three										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	1,402	-19.83*	[-24.71, -14.95]	2.47	[-3.04, 7.98]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		6.04*	[3.58, 8.49]	-0.36	[-1.12, 0.39]
% PC = 100%		N/A	N/A	N/A	N/A		13.79*	[10.70, 16.89]	-2.11	[-6.92, 2.71]
Overall										
% PC < 70%	N/A	N/A	N/A	N/A	N/A	4,922	-9.16*	[-15.94, -2.38]	1.44	[-3.03, 5.91]
70% ≤ % PC < 100%		N/A	N/A	N/A	N/A		2.56*	[0.53, 4.59]	-0.24	[-1.00, 0.51]
% PC = 100%		N/A	N/A	N/A	N/A		6.60*	[1.69, 11.51]	-1.20	[-4.93, 2.54]

(continued)

Table 11-13 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care
among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions										
Year One	N/A	N/A	N/A	N/A	N/A	1,797	1.13	[-1.66, 3.91]	-0.52	[-2.09, 1.06]
Year Two	N/A	N/A	N/A	N/A	N/A	1,139	1.57	[-1.29, 4.43]	2.70*	[1.06, 4.34]
Year Three	N/A	N/A	N/A	N/A	N/A	742	2.16*	[0.50, 3.82]	0.49	[-0.97, 1.96]
Overall	N/A	N/A	N/A	N/A	N/A	3,045	1.46	[-0.69, 3.62]	0.70	[-0.21, 1.60]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly dichotomous (yes/no) measures. Primary care visits are a percentage of total visits. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique CCI Medicaid participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of these events occurring among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with the MAPCP Demonstration in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a decrease in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an increase in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Changes in 30-day unplanned readmissions for children are not reported due to the low frequency of readmissions among children.

CCI = Chronic Care Initiative; CG = comparison group; DNC = did not converge; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult and children Medicaid beneficiaries, we found that CCI impacted several of the access-to-care and care-coordination measures, with impacts seen primarily when CCI beneficiaries were compared with beneficiaries assigned to PCMH practices. Specifically, *Table 11-13* shows the following:

- Among Medicaid children, the *overall* likelihood of having **medical specialist and surgical specialist visits** increased among CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicaid adults, the *overall* likelihood of having **primary care visits** decreased among CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicaid adults, **primary care visits as a share of total visits** increased among CCI beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, CCI decreased the *overall* likelihood that a demonstration beneficiary had fewer than 70 percent of all his or her visits in primary care settings and increased the *overall* likelihood that a demonstration beneficiary had 100 percent of all his or her visits in primary care settings.

Among Medicaid children, no statistically significant *overall* impacts were observed for the measures of primary care visits. Among Medicaid adults, no statistically significant *overall* impacts were observed for the measures of medical and surgical specialist visits and 30-day unplanned readmissions.

11.4.3 Discussion of Access to Care and Coordination of Care

Overall, there was evidence that, for Medicare beneficiaries, CCI practices experienced the expected shift in the primary care visits as a percentage of total visits compared with non-PCMH comparison practices. This change could be associated with the CCI Phase II requirement that practices have an on-site care manager and practice efforts to focus more closely on improving care coordination, particularly for their high-risk patients. Results from the provider survey confirmed the strong role played by care managers in CCI. Likewise, focus group participants reported positive views on the care-coordination services provided by their practice, although most participants were not receiving care management services at the time of the focus groups, perhaps reflecting that CCI practices provided care management services to a subset of their patients (those with chronic conditions). There was also evidence, however, that continuity of care for Medicare beneficiaries worsened relative to non-PCMH practices.

There was evidence of improved care coordination following hospital discharge for Medicare beneficiaries relative to the non-PCMH CG. This is consistent with reports that following up with patients during and after care transitions from the hospital or ER to other facilities was a main focus for care managers in the demonstration's later years. This activity was sometimes dependent on whether a practice received a list of hospitalized or discharged patients from a health insurance plan or local hospital. Many practices said their care managers tried to contact patients on their high-risk list within 24 to 48 hours of discharge.

Practices and patients offered mixed and somewhat conflicting perspectives on the degree of access available at CCI practices. The provider survey results indicated that practices were

relatively accessible to patients even without significant access-related activities pushed by CCI. Patient perspectives captured through the CAHPS PCMH survey and focus groups were mixed, with patients generally finding practices more accessible for non-urgent needs compared with practice access for more urgent care. Patients also viewed the availability of same-day appointments and access to care during evenings, weekends, and holidays less favorably.

11.5 Beneficiary Experience with Care

This section describes the changes that practices made aimed at improving Medicare and Medicaid beneficiaries' overall experiences with care (*Section 11.5.1*); beneficiaries' experiences with key aspects of their care, such as communicating with providers, getting help with self-managing their chronic conditions, and being involved in shared decision-making about treatments (*Section 11.5.2*); and a synthesis of these findings (*Section 11.5.3*). This analysis draws on data collected during our site visit interviews, the CAHPS PCMH survey, and focus groups.

11.5.1 Implementation of State Initiative and Practice Features Expected to Improve Beneficiary Experience with Care During the Evaluation Period

CCI participants viewed the use of care managers, health educators, and patient portals as the most visible changes that practices made to improve patients' overall experiences with care. Practices relied on their care managers and health educators to work with their high-risk patients with chronic conditions. Care managers sought to actively engage their patients in their care using patient agendas (lists of issues patients brought to discuss during their office visit) and preparing and implementing care plans. Practices report that their patients viewed care managers' follow-up after discharge from the hospital or ER and medication reconciliation as significant benefits of the PCMH model. To improve patient knowledge for better self-management of their chronic conditions, many practices offered one-on-one time and group classes with patient educators to discuss common conditions; practices reported that their patients generally felt that these education activities were helpful. As part of CCI, practices also made Web-based patient portals available to their patients to make appointments, communicate with providers, and view test results. Practices reported that their patients generally liked to see their health information in one place, including lab results, imaging, medications, and allergies, and were excited to "own" their own record.

Although practices did not describe significant changes in their attempts to engage patients as the demonstration progressed in Year Two and Year Three, practices continued to refine the role of care managers and health educators and their use of patient portals. Practices worked on strengthening the role of their care managers. For example, practices reported more proactively engaging in medication management and reconciliation after a hospital discharge or ER visit. Practices also reported offering more group classes and one-on-one education activities for patients with common conditions like diabetes, asthma, and hypertension. Some practices also made some improvements to their patient portal (e.g., allowing patients to send quick messages about nonurgent matters and physicians to respond by e-mail).

With one exception, the provider survey administered in Year Three found that Pennsylvania practices were engaging in efforts to involve patients and support patients' self-management goals at a high level at rates comparable to the average of providers in the eight MAPCP Demonstration states. Seventy-four percent of Pennsylvania providers reported a high

level of engagement in self-management support for patients with chronic conditions through goal setting and action planning. In contrast, on average only 57 percent of providers across all MAPCP Demonstration states reported a high level of engagement in those activities. This result may reflect CCI's long-standing focus on patients with chronic conditions (see *Section 11.7.1* for details).

11.5.2 Measurement of Beneficiary Experience with Care

This section reports on how patients perceived their beneficiary experience as part of CCI. This analysis is based on data gathered from the CAHPS PCMH survey fielded among Medicare FFS beneficiaries and the focus groups with Medicare FFS and Medicaid beneficiaries and their caregivers. Beneficiary experience with certain aspects of care is discussed in greater detail in other sections of this chapter.

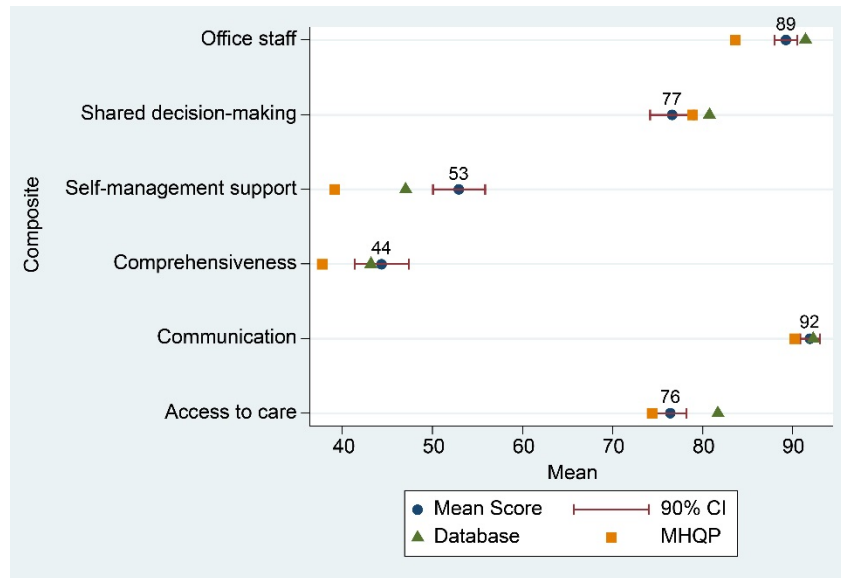
Composite scores of patient experience. Using data from the CAHPS PCMH survey, we created six multi-item composite scales to measure patient experience. These scales combined related items to form summary scores that are more precise indicators of patient experience than any single item. The six composites are as follows:

- *Communication with providers.* Six items regarding the quality of interactions with a PCP.
- *Access to care.* A five-item measure about getting appointments and answers to medical questions in a timely manner.
- *Comprehensive-behavioral/whole-person orientation.* Three yes/no items concerning discussions about stress, depression, and family problems.
- *Self-management support.* Two yes/no questions about goal setting and barriers to care.
- *Shared decision-making.* Three items regarding medication use.
- *Office staff.* Two items about interactions with medical practice office staff.

All composites are scored from 0 to 100, with higher scores indicating more favorable results. **Figure 11-2** contains the composite scales of Pennsylvania and compares them with those of the CAHPS Database and the 2011 Massachusetts Health Quality Partners (MHQP) study.⁹ The presented composite scale scores are adjusted using propensity weights and case-mix weights (using age group, educational attainment, and perceived health status).

⁹ The CAHPS Database was compiled by Westat and is a repository for health care plans that are interested in developing benchmarks for their programs. The database contains information from plans that voluntarily chose to share their data. A total of 320 medical practices contributed data to this repository. Data collected for the 2011 MHQP study was the source of the original psychometric assessments for the PCMH-CAHPS composites. The analysis was based on 1,790 adults from 10 large practices in the Boston area.

Figure 11-2
Pennsylvania CAHPS PCMH survey composite measures
compared with two reference scores



CAHPS = Consumer Assessment of Healthcare Providers and Systems; CI = confidence interval; MHQP = Massachusetts Health Quality Partners; PCMH = patient-centered medical home.

As shown in **Figure 11-2**, on the CAHPS *office staff* composite domain, Medicare beneficiaries in Pennsylvania rated their practice's staff more highly than a reference group of Boston practices, but slightly lower than the average rating in the Agency for Healthcare Research and Quality's (AHRQ's) national database. Pennsylvania's score on the *shared decision-making* and *access to care* composites was in line with the reference group of Boston practices but slightly lower than the AHRQ database. Pennsylvania achieved a higher score on the *self-management support* composite score compared with the reference group of Boston practices and the AHRQ database. Pennsylvania's performance on the *comprehensiveness* composite score was similar to the AHRQ database and higher than the reference group of Boston practices. Pennsylvania's score on the *communications* composite score was similar to the AHRQ database and the reference group of Boston practices.

Communication. On the basis of Medicare FFS beneficiaries' responses to our survey, Pennsylvania CCI practices earned an adjusted score of 92 out of 100 on a multiquestion composite scale that measures the quality of communication between patients and providers (**Figure 11-2**). The focus groups yielded similarly positive findings—although some contrary views did emerge from a few participants.

Access to care. As noted earlier in this chapter, CCI practices earned a weighted score of 76 out of 100 on a multiquestion composite scale that measured how easily patients could access their primary care practices—a score that likely reflects that access was not a major or direct focus of CCI (**Figure 11-2**). This level of access to care, from patient perspectives, was reflected in the focus group discussions. (See **Section 11.4.1** for further discussion of beneficiaries' experience accessing care.)

Care coordination. In CCI, care coordination was often linked with access to care, as care managers often coordinated the access of patients to other medical and nonmedical services. The focus group participants discussed their experience with care managers, coordination observed between their primary care practices and local hospitals, and coordination observed with specialists. Focus group participants generally had positive views on the coordination of their care, but only a few participants reported that they were receiving services through a care manager at the time of the focus group. (See *Section 11.4.1* for further discussion of beneficiaries' views on the coordination of their care.)

Self-management support. With one exception, the provider survey found that Pennsylvania practices were taking steps to support patients' self-management goals at a high level. Seventy-four percent of Pennsylvania providers reported a high level of engagement in self-management support for patients with chronic conditions through goal setting and action planning. In contrast, on average only 57 percent of providers across all MAPCP Demonstration states reported a high level of engagement in those activities. This result may reflect CCI's longstanding focus on patients with chronic conditions (see *Section 11.7.1* for details).

Findings from the CAHPS PCMH survey show that Medicare beneficiaries were less positive about their practices' efforts to engage in patient self-management. On the basis of Medicare FFS beneficiaries' responses to the CAHPS PCMH survey, Pennsylvania CCI practices earned a weighted score of 53 out of 100 on a multiquestion composite scale that assesses the degree to which practices offered patients self-management support (*Figure 11-2*)—a lower score that is consistent with site-visit findings, indicating that self-management support was not a major focus for practices. This composite reflects the following:

- 65 percent of respondents had practice staff who talked to them about specific health goals; and
- 42 percent had practice staff who talked to them about things that made it hard for them to take care of their health.

Similarly, focus group participants had mixed experiences regarding the extent to which their doctors helped them take care of themselves. Many participants were encouraged by their PCPs to exercise, and some received fitness center discounts and other incentives. Other participants reported that their PCP had “given up” recommending exercise, because they knew “it would be in one ear and out the other.” Few reported having discussions with their PCPs about weight management. Several mentioned that their PCPs offered a smoking cessation class, a diabetes class, or help with monitoring blood pressure with a cuff at home.

Shared decision-making. Pennsylvania CCI practices earned a score of 77 out of 100 on a composite that assesses the degree to which practices engage in shared decision-making with patients (*Figure 11-2*)—a lower score that is consistent with site-visit findings, indicating that shared decision-making was not a major focus for practices. This composite reflects the following:

- 92 percent reported that their providers talked to them some or a lot about the reasons to take a medicine when discussing starting or stopping a prescription medication;

- 79 percent responded that their providers talked to them some or a lot about the reasons they might not want to take a medicine when discussing starting or stopping a prescription medication; and
- 79 percent were asked what they thought was best for them when talking about starting or stopping a prescription medicine.

Most focus group participants had a partnership with their PCP. For example, in several groups, including a group of low-risk Medicare beneficiaries and two groups of dually eligible beneficiaries, every participant answered affirmatively when the moderator asked if they felt they had a partnership with their PCP. Some participants in other groups, however, felt that their PCP did not necessarily view them as capable of making informed medical decisions. One participant said she felt that her PCP occasionally “lectured” her. Another participant described how she has had arguments with her PCP about medications; her PCP insists that she take a certain medication, even though she’s taken it before and had unpleasant side effects. When describing her PCP’s approach to decision making, the participant said, “[My PCP] doesn’t think I have the right to choose. He says, ‘Well, this is what I’m telling you that you need to take.’”

Office staff. Pennsylvania CCI practices earned an 89 out of 100 on a composite that assesses the helpfulness, courtesy, and respectfulness of practice receptionists and clerks (*Figure 11-2*). When asked to give a global rating of their provider, 92 percent of Pennsylvania Medicare FFS beneficiaries gave their provider a rating of 8 out of 10 or higher. More than half (61%) gave their provider the highest possible rating—10 out of 10.

Additional topics covered in the focus groups. The focus groups covered several additional topics, including participants’ perceptions of their providers’ medical expertise, their team-based approach to care, the use of EHRs, patient portal availability and usage, and activities that practices implemented to seek patient feedback.

ER use. Some participants reported that they had been encouraged to call their PCP before going to the ER. One participant said, “Well, because the ER is so darn expensive, my doctor set it up in her practice that you need to call them or come see them [before going to the ER], because they might be able to help you rather than going to sit in emergency and it’s nothing great and they send you home.” Another participant reported that her clinic has a dedicated “call-in nurse” who is available to answer urgent calls and direct patients either to the clinic or to the ER. Some participants mentioned signs posted in their primary care clinic’s waiting room that listed certain urgent issues that would be better addressed at the clinic than in the ER. But participants agreed that for a “true emergency,” they would go straight to the ER.

Patient portal. Some participants were aware of a patient portal, and a subset of these had registered and used the portal at least once. Most participants who were aware of a portal reported that it was a relatively recent development, but a handful of participants thought that the portal had been available “for quite a while.” Participants used the portal to access test results, communicate with providers, schedule appointments, and receive appointment reminders. Participants especially appreciated being able to view test results “nearly right away,” instead of having to wait for mailed or phone results. Some preferred to receive them by mail, although several reported that they had trouble interpreting test results and just wanted to know if they were “good or bad.”

Other patients either were unaware of the portal or were aware but chose not to use it, as one participant said, because “that computer drives me nuts,” because of privacy concerns, or because of lack of computer access.

Patient feedback. Most but not all participants reported that they had received requests for feedback from their PCP. A group of Medicaid beneficiaries reported that they had never been asked for feedback. Of those who had been asked for feedback, most received a mailed survey several weeks after a visit; a minority filled out a form while still in the office. Participants generally seemed pleased to fill these out, and most said they had mostly praise to report.

11.5.3 Discussion of Beneficiary Experience with Care

Practices engaged in several activities designed to improve their patients’ experience receiving care. PCMH model features most frequently cited as visible to patients were the care managers, health educators, and patient portals. Practices were generally enthusiastic about the potential for these features to improve how patients worked with the physician to manage their care and reported that their patients found these practices changes useful.

Despite these changes, it appears that practices have room for improvement. Although practices noted efforts to engage in activities designed to improve patient self-management and shared decision-making, patients reported mixed experiences. For example, only two-thirds of Medicare patients reported that practice staff talked to them about specific health goals, and only 42 percent discussed barriers to taking care of their health with practice staff. The explanation for the contrasting experiences of practices and patients may be that practices were focused on providing care management services to patients with chronic conditions, not for their entire patient panel. For example, patients with chronic conditions may have experienced more intense practice support (e.g., patient education classes) to self-manage their chronic conditions and efforts to share in decision making about their care.

11.6 Effectiveness (Utilization and Expenditures)

This section describes the savings Pennsylvania expected to produce for Medicare through the MAPCP Demonstration, as well as interviewees’ views on the likelihood of these savings materializing (*Section 11.6.1*), impacts on service utilization and expenditures (*Section 11.6.2* and *11.6.3*), calculations identifying whether Medicare achieved budget neutrality in the MAPCP Demonstration (*Section 11.6.4*), and a synthesis of these findings (*Section 11.6.5*).

11.6.1 Implementation of State Initiative and Practice Features Expected to Affect Patterns of Utilization and Expenditures During the Evaluation Period

According to its MAPCP Demonstration application, Pennsylvania expected to see a reduction in inpatient costs and ER visits and an increase in evaluation and management visits and laboratory testing. State officials expected that the following features of CCI would contribute to reductions in inpatient and ER utilization:

- Development of self-management support plans for patients with chronic conditions;
- Enhanced access to primary care;

- Better management of transitions in care;
- More aggressive tracking of and outreach to patients in need of care management; and
- Care management for high-risk patients.

Practices reportedly were engaged in many of these activities, but not to the same degree. For example, practices were using care managers to identify, reach out to, and manage care for high-risk patients but tended to be less focused on improving access to care and patient self-management. CCI participants expected that the use of care managers would have helped to reduce ER visits and hospital admissions. Several practices also identified care transitions from the hospital to the community or other facilities as a major focus of their care managers. Practices hoped that strengthening their care transition services would have contributed to reductions in unnecessary hospital readmissions, but they had varying relationships with local hospitals and enjoyed varying degrees of information sharing about patients who visit the ER or were admitted or discharged from the hospital.

11.6.2 Impacts on Utilization and Expenditures

CCI was expected to decrease the use of some services while increasing the use of others. Overall, however, the demonstration was intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare expenditure and Medicare and Medicaid utilization outcomes between CCI and two CGs: PCMHs and non-PCMHs. Only one of Medicaid managed care partners participating in CCI, AmeriHealth, provided Medicaid enrollment and managed care encounter data for Medicaid beneficiaries whose assigned PCP worked at a MAPCP Demonstration or CG practice. AmeriHealth did not provide expenditure data, so we were unable to examine Medicaid expenditures.

- **Table 11-14** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration.

Estimates in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG.

- **Table 11-15** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicare beneficiaries.
- **Table 11-16** reports on changes in *all-cause admissions* and *all-cause ER visits* among Medicaid beneficiaries.

Estimates in these tables are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with CCI in either Year One, Year Two, Year Three, or all years of the MAPCP Demonstration. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. For Medicaid, the non-elderly Medicaid

adults and children comprising our sample used services less frequently than the elderly Medicare population, so we used a binary indicator of whether or not the Medicaid beneficiary had ever used a service in a quarter. Therefore, Medicaid results are interpreted as the difference in the likelihood of events associated with the MAPCP Demonstration, and a *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG, whereas a *positive* value corresponds to an *increase* in the likelihood of events compared with the CG. Total increases or decreases in utilization (Medicare) and beneficiaries using a service (Medicaid) relative to the CG are reported as the *overall aggregate* in these tables. We also note when the overall result was not statistically significant, but the results in Years Two and Three were statistically significant and indicated a potential trend.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 11.6.5**.

Table 11-14
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for expenditures among Medicare beneficiaries: Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 30,365)	11.31	[-43.41, 66.03]	-13.64	[-56.71, 29.43]
Year Two (N = 32,783)	-50.23*	[-81.72, -18.75]	-45.15*	[-83.33, -6.96]
Year Three (N = 33,333)	-73.46*	[-112.24, -34.67]	-17.95	[-62.60, 26.71]
Overall (N = 41,636)	-37.68*	[-74.22, -1.15]	-25.92	[-63.17, 11.32]
Overall Aggregate	-\$36,633,818*		-\$25,202,758	
Acute care				
Year One (N = 30,365)	-4.11	[-28.01, 19.78]	-9.40	[-29.38, 10.58]
Year Two (N = 32,783)	-28.61*	[-43.43, -13.79]	-20.98*	[-40.16, -1.80]
Year Three (N = 33,333)	-34.13*	[-51.77, -16.49]	-2.94	[-26.51, 20.63]
Overall (N = 41,636)	-22.40*	[-38.33, -6.46]	-11.28	[-28.90, 6.34]
Overall Aggregate	-\$21,772,671*		-\$10,967,258	
Post-acute care				
Year One (N = 30,365)	13.05*	[0.77, 25.33]	5.21	[-10.19, 20.61]
Year Two (N = 32,783)	-11.95	[-25.26, 1.35]	-10.98	[-26.38, 4.43]
Year Three (N = 33,333)	-14.11*	[-25.15, -3.08]	-1.79	[-14.99, 11.41]
Overall (N = 41,636)	-4.47	[-12.92, 3.98]	-2.67	[-15.58, 10.25]
Overall Aggregate	-\$4,347,479		-\$2,593,527	
ER visits not leading to hospitalization				
Year One (N = 30,365)	-1.25	[-4.85, 2.34]	-1.38*	[-2.66, -0.10]
Year Two (N = 32,783)	-2.12*	[-3.49, -0.74]	-1.08	[-2.18, 0.02]
Year Three (N = 33,333)	-2.24*	[-3.64, -0.84]	-0.82	[-2.58, 0.93]
Overall (N = 41,636)	-1.87	[-3.78, 0.04]	-1.10	[-2.20, 0.01]
Overall Aggregate	-\$1,820,853		-\$1,065,342	

(continued)

Table 11-14 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Outpatient				
Year One (N = 30,365)	-3.03	[-8.98, 2.92]	1.52	[-5.25, 8.30]
Year Two (N = 32,783)	-8.16*	[-14.15, -2.17]	-0.55	[-7.75, 6.65]
Year Three (N = 33,333)	0.96	[-9.15, 11.08]	9.00	[-1.61, 19.62]
Overall (N = 41,636)	-3.49	[-9.67, 2.68]	3.26	[-3.62, 10.13]
Overall Aggregate	-\$3,394,669		\$3,166,122	
Specialty physician				
Year One (N = 30,365)	4.44	[-3.23, 12.10]	-7.56*	[-12.88, -2.25]
Year Two (N = 32,783)	5.00	[-4.55, 14.55]	-10.59*	[-15.36, -5.81]
Year Three (N = 33,333)	-2.26	[-12.49, 7.97]	-8.88*	[-14.08, -3.68]
Overall (N = 41,636)	2.44	[-6.33, 11.21]	-9.04*	[-13.38, -4.69]
Overall Aggregate	\$2,371,540		-\$8,785,431*	
Primary care physician				
Year One (N = 30,365)	0.82	[-1.25, 2.89]	-0.80	[-2.95, 1.35]
Year Two (N = 32,783)	-2.94	[-6.49, 0.60]	-1.89	[-4.15, 0.36]
Year Three (N = 33,333)	-7.41*	[-12.14, -2.67]	-4.16*	[-6.51, -1.80]
Overall (N = 41,636)	-3.17	[-6.49, 0.14]	-2.28*	[-4.35, -0.21]
Overall Aggregate	-\$3,085,306		-\$2,212,566*	
Home health				
Year One (N = 30,365)	2.19	[-2.70, 7.07]	0.31	[-4.33, 4.95]
Year Two (N = 32,783)	-0.50	[-4.06, 3.06]	-2.27	[-6.99, 2.45]
Year Three (N = 33,333)	-2.46	[-6.16, 1.23]	-5.14*	[-10.21, -0.07]
Overall (N = 41,636)	-0.26	[-3.86, 3.33]	-2.36	[-6.89, 2.16]
Overall Aggregate	-\$255,184		-\$2,298,443	
Other non-facility				
Year One (N = 30,365)	-1.98	[-6.21, 2.25]	-3.78	[-7.62, 0.07]
Year Two (N = 32,783)	-1.96	[-5.80, 1.89]	-2.21	[-5.54, 1.12]
Year Three (N = 33,333)	-1.21	[-3.92, 1.50]	-1.50	[-5.13, 2.14]
Overall (N = 41,636)	-1.72	[-4.49, 1.05]	-2.49	[-5.55, 0.57]
Overall Aggregate	-\$1,671,838		-\$2,421,037	
Laboratory				
Year One (N = 30,365)	-2.36*	[-3.52, -1.20]	-2.53*	[-3.89, -1.17]
Year Two (N = 32,783)	-2.99*	[-4.11, -1.87]	-1.78*	[-3.01, -0.56]
Year Three (N = 33,333)	-3.25*	[-5.20, -1.30]	-2.56*	[-4.21, -0.91]
Overall (N = 41,636)	-2.87*	[-4.02, -1.72]	-2.28*	[-3.51, -1.06]
Overall Aggregate	-\$2,789,578*		-\$2,218,691*	
Imaging				
Year One (N = 30,365)	-0.47	[-2.30, 1.35]	-0.65	[-2.17, 0.87]
Year Two (N = 32,783)	-0.99	[-2.97, 0.99]	-0.93	[-2.65, 0.80]
Year Three (N = 33,333)	-2.44*	[-4.56, -0.32]	-1.38	[-3.19, 0.43]
Overall (N = 41,636)	-1.29	[-3.22, 0.63]	-0.98	[-2.59, 0.62]
Overall Aggregate	-\$1,258,370		-\$956,679	

(continued)

Table 11-14 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other facility				
Year One (N = 30,365)	-0.20	[-0.78, 0.37]	-0.34	[-0.77, 0.10]
Year Two (N = 32,783)	-0.06	[-0.42, 0.31]	-0.54*	[-1.08, -0.01]
Year Three (N = 33,333)	-0.09	[-0.35, 0.16]	-0.12	[-0.37, 0.13]
Overall (N = 41,636)	-0.12	[-0.43, 0.20]	-0.34*	[-0.64, -0.04]
Overall Aggregate	-\$113,621		-\$328,246*	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater* growth compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found evidence that CCI decreased a number of expenditure outcomes, although there were inconsistencies in the statistical significance across CGs for several of the measures. Specifically, **Table 11-14** shows the following:

- The growth in **overall aggregate total Medicare expenditures** was \$36.6 million lower for beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices.
- The growth in **overall aggregate acute-care expenditures** was \$21.8 million lower for Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices.
- A negative estimate in Years Two and Three suggested a potential trend toward lower growth in **expenditures for ER visits not leading to hospitalization** among Medicare beneficiaries assigned to CCI practices compared with beneficiaries

assigned to PCMH practices, although the *overall* estimate was not statistically significant.

- The growth in *overall aggregate specialty physician expenditures* was \$8.8 million lower for Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate primary care physician expenditures* was \$2.2 million lower for Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate laboratory expenditures* was \$2.8 million lower for Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices and \$2.2 million lower compared with beneficiaries assigned to non-PCMH practices.
- The growth in *overall aggregate other facility expenditures* was \$328,246 lower for Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for post-acute-care expenditures, outpatient expenditures, home health expenditures, other non-facility expenditures, or imaging expenditures.

Table 11-15
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 30,365)	-1.41	[-5.32, 2.50]	2.66	[-0.57, 5.89]
Year Two (N = 32,783)	-8.83*	[-16.48, -1.18]	-0.40	[-4.29, 3.49]
Year Three (N = 33,333)	-8.62*	[-14.06, -3.18]	1.11	[-3.11, 5.33]
Overall (N = 41,636)	-6.33*	[-11.26, -1.40]	1.10	[-2.24, 4.43]
Overall Aggregate	-2,052*		355	
ER visits not leading to hospitalization				
Year One (N = 30,365)	-1.46	[-9.08, 6.16]	-4.59	[-10.16, 0.98]
Year Two (N = 32,783)	-3.52	[-9.12, 2.09]	-4.63	[-10.29, 1.03]
Year Three (N = 33,333)	-1.49	[-7.96, 4.97]	-4.33	[-11.25, 2.58]
Overall (N = 41,636)	-2.18	[-8.36, 4.00]	-4.52	[-9.91, 0.88]
Overall Aggregate	-706		-1,464	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the Overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries, we found evidence that CCI changed the rate of all-cause admissions. Specifically, the *overall aggregate* number of **all-cause admissions** decreased by 2,052 among beneficiaries assigned to CCI compared with beneficiaries assigned to PCMH practices. No statistically significant *overall* impacts were observed among beneficiaries for ER visits not leading to hospitalization. These findings are surprising given that the shared savings component of CCI incentivized practices to be attentive to ER visits.

Table 11-16
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions										
Year One	21,015	0.27*	[0.14, 0.39]	0.03	[-0.06, 0.12]	12,724	-0.59	[-2.34, 1.16]	-0.27	[-0.82, 0.27]
Year Two	17,867	0.11	[-0.07, 0.29]	-0.04	[-0.16, 0.08]	8,053	-0.56	[-2.03, 0.92]	-0.76*	[-1.43, -0.09]
Year Three	15,560	0.23	[0.00, 0.46]	-0.07	[-0.20, 0.07]	6,833	0.21	[-1.43, 1.85]	-1.16*	[-1.85, -0.47]
Overall	29,595	0.20* 332*	[0.06, 0.34]	-0.02 -34	[-0.12, 0.08]	16,330	-0.39 -297	[-1.86, 1.07]	-0.63* -478*	[-1.17, -0.09]
ER visits not leading to hospitalization										
Year One	21,015	1.22*	[0.23, 2.22]	0.47	[-0.56, 1.51]	12,724	0.12	[-2.48, 2.73]	-1.49*	[-2.76, -0.22]
Year Two	17,867	1.23*	[0.11, 2.35]	-0.12	[-1.47, 1.24]	8,053	-0.73	[-3.34, 1.87]	-1.93*	[-3.44, -0.41]
Year Three	15,560	0.23	[-0.71, 1.18]	-0.85	[-2.16, 0.47]	6,833	2.48	[-0.98, 5.95]	-3.21*	[-5.09, -1.33]
Overall	29,595	0.95* 1,568*	[0.01, 1.90]	-0.09 -148	[-1.29, 1.11]	16,330	0.40 305	[-2.04, 2.84]	-2.03* -1,529*	[-3.40, -0.66]
Low birth weight admissions	2268	3.39	[-2.66, 9.44]	0.71	[-6.14, 7.55]	N/A	N/A	N/A	N/A	N/A
Overall		28		6						

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CCI Medicaid participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; N/A = not applicable; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries, we found evidence that CCI changed the utilization, Specifically, **Table 11-16** shows the following:

- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** increased by 332 among Medicaid child beneficiaries assigned to CCI compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** increased by 1,568 among Medicaid child beneficiaries assigned to CCI compared with beneficiaries assigned to PCMH practices.
- The *overall aggregate* number of beneficiaries with at least one **all-cause admission** decreased by 478 among Medicaid adult beneficiaries assigned to CCI compared with beneficiaries assigned to non-PCMH practices. The *overall aggregate* number of beneficiaries with at least one **ER visit not leading to hospitalization** decreased by 1,529 among Medicaid adult beneficiaries assigned to CCI compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed among child beneficiaries for low birth weight.

11.6.3 Impacts on Utilization and Expenditures Targeted by State

In addition to the utilization and expenditure categories that are analyzed across all eight MAPCP Demonstration states, we also analyzed categories that Pennsylvania expected to be affected by the demonstration, as noted in the state's MAPCP Demonstration application. The categories in this section do not map directly to the categories of services analyzed in the previous section. **Table 11-17** reports covariate-adjusted differences in state-specific expenditure and utilization outcomes between Medicare beneficiaries assigned to CCI practices and two CGs: PCMHs and non-PCMHs. **Table 11-17** contains measures of expenditures for hospital professionals and office/home visits, as well as specific categories of utilization expected to be affected by the demonstration: hospital professional services, office/home visits, and laboratory services. Details on these measures can be found in **Appendix D**. Expenditure estimates in this table are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CG. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a *positive* value corresponds to *greater growth* compared with the CG. Utilization estimates in this table are interpreted as the difference in the rate of utilization associated with CCI per 1,000 beneficiary quarters. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG. Estimates are presented overall for all quarters of the demonstration.

Table 11-17
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries: Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Hospital professional expenditures Overall (N = 41,636)	-1.19	[-3.54, 1.16]	-2.59	[-5.28, 0.10]
Office/home visit expenditures Overall (N = 41,636)	2.25	[-1.58, 6.08]	-2.13	[-5.25, 0.99]
Hospital professional Overall (N = 41,636)	-39.63*	[-67.16, -12.10]	-19.71	[-51.96, 12.54]
Office visits Overall (N = 41,636)	25.20	[-19.54, 69.93]	9.79	[-36.83, 56.41]
Laboratory Overall (N = 41,636)	-682.86*	[-1025.98, -339.73]	-414.72*	[-732.74, -96.70]

NOTES:

- Expenditures for hospital professional and office/home visits are PBPM.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures compared with the CG across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater* growth compared with the CG.
- Hospital professional services, office visits, and laboratory services are rates per 1,000 beneficiary quarters.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries, we found that CCI decreased some of the targeted expenditure and utilization outcomes, although the impact on hospital professional utilization was inconsistent in statistical significance across CGs. Specifically, **Table 11-17** shows the following:

- The *overall* estimate indicated that CCI decreased the rate of **hospital professional utilization** among Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices.
- The *overall* estimates indicated that CCI decreased the rate of **laboratory utilization** among Medicare beneficiaries assigned to CCI practices compared with beneficiaries assigned to either PCMH or non-PCMH practices.

No statistically significant *overall* impacts were observed for hospital professional expenditures, office/home visit expenditures, or office visits.

11.6.4 Medicare Budget Neutrality

This section reports estimated savings and return on fees for the MAPCP Demonstration in Pennsylvania relative to PCMH and non-PCMH comparison beneficiaries. Estimated savings are presented via three metrics: gross savings, net savings, and return on fees. Gross savings represent the total reduction in Medicare expenditures associated with the MAPCP Demonstration, whereas net savings are gross savings minus the fees paid on behalf of Medicare. The return on fees equals gross savings divided by fees paid and represents the amount of savings per dollar spent by CMS.

For the purposes of budget neutrality, gross savings equal the estimated PBPM savings (or losses) in total Medicare expenditures multiplied by the number of beneficiary-months observed. The estimated PBPM savings (or losses) in total Medicare expenditures are based on the total Medicare expenditure regression estimates in **Table 11-14** from **Section 11.6.2**. (See **Appendix C** for detailed explanation of these models.) As previously discussed, these models estimate the impact of the MAPCP Demonstration PBPM total Medicare expenditures. The statistical significance of the gross savings estimate therefore mirrors the statistical significance of the PBPM estimates from **Table 11-14**. Negative PBPM estimates translate into positive estimates of gross savings, and positive PBPM estimates translate into gross losses.

Because net savings and return on fees are themselves derived from the gross savings estimate, their statistical significance is also a function of the PBPM estimates. The net savings estimate answers the question: Did gross savings more than cover the total fees that Medicare paid out? Negative net savings estimates denote that gross savings were greater than the total MAPCP Demonstration fees. Positive net savings estimates denote that either there were gross losses or the MAPCP Demonstration fees were greater than gross savings. The return on fees answers the question: How much did CMS save in Medicare expenditures per dollar paid out in fees? A return on fees equal to or greater than 1.0 implies budget neutrality.

Table 11-18 reports estimated gross and net savings and RoI for the MAPCP Demonstration during the 12 quarters of CCI. Estimates are presented both annually and across all quarters. Confidence intervals are presented for estimates of gross and net savings.

Table 11-18
Pennsylvania: Estimates of gross savings, fees paid, and net savings and return on fees

	Gross savings	90% confidence interval		Fees	Net savings	90% confidence interval		Return on fees
		Lower	Upper			Lower	Upper	
Relative to PCMH comparison beneficiaries								
Year One	−\$3,599,945	−\$21,019,255	\$13,819,365	\$2,067,255	−\$12,804,126	−\$30,223,436	\$4,615,184	−0.39
Year Two	\$16,855,421*	\$6,289,916	\$27,420,927	\$1,824,066	\$7,894,429*	−\$2,671,076	\$18,459,935	1.88
Year Three	\$23,378,343*	\$11,033,721	\$35,722,965	\$1,446,916	\$14,794,501*^	\$2,449,879^	\$27,139,123^	2.72^
All Years	\$36,633,819*	\$1,113,533	\$72,154,104	\$5,338,237	\$24,158,656^	−\$11,361,630^	\$59,678,941^	2.94^
Relative to non-PCMH comparison beneficiaries								
Year One	\$4,342,914	−\$9,367,645	\$18,053,474	\$2,067,255	−\$4,861,267	−\$18,571,826	\$8,849,293	0.47
Year Two	\$15,148,560*	\$2,336,261	\$27,960,859	\$1,824,066	\$6,187,568	−\$6,624,731	\$18,999,867	1.69
Year Three	\$5,711,285	−\$8,502,270	\$19,924,839	\$1,446,916	−\$2,872,558^	−\$17,086,112^	\$11,340,997^	0.67^
All Years	\$25,202,759	−\$11,000,621	\$61,406,138	\$5,338,237	\$12,727,596^	−\$23,475,784^	\$48,930,975^	2.02^

NOTES:

- Gross savings: Estimated increase (or decrease) in PBPM Medicare expenditures associated with the demonstration multiplied by the number of demonstration beneficiary-months observed during the period.
- Net savings: The estimate of gross savings minus the total Medicare fees paid.
- Fees: Beneficiaries with less than 3 months of Medicare eligibility during the demonstration were not used in the calculation of savings or fees paid.
- Return on fees: The estimate of gross savings divided by total Medicare fees paid.

CMS = Centers for Medicare & Medicaid Services; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

^ Net savings and return on fees in both Year Three and All Years include the shared savings payment of \$7,136,926 made by CMS in Year Three.

SOURCE: Medicare claims 2012: Q1–2014: Q4.

In the analysis of budget neutrality relative to the PCMH CG, *Table 11-18* shows the following:

- The MAPCP Demonstration in Pennsylvania resulted in an estimated gross savings of \$36,633,819 with a 90 percent confidence interval that extended from \$1.1 million to \$72.2 million.
- Total demonstration fees paid out were \$5,338,237, which translates into an estimated net savings of \$24,158,656 and a return on fees of 2.94. The 90 percent confidence interval around the estimate of net savings contained \$0, however, so it failed to achieve statistical significance.
- Estimates of gross and net savings were statistically significant in Year Two and Year Three, indicating a potential trend toward budget neutrality in the later period of the demonstration.

In the analysis of budget neutrality relative to the non-PCMH CG, *Table 11-18* shows the following:

- The MAPCP Demonstration in Pennsylvania resulted in an estimated gross savings of \$25,202,759. However, because the 90 percent confidence interval contained \$0, the estimate was not statistically significant.
- Total demonstration fees paid out were \$5,338,237, which translates into an estimated net savings of \$12,727,596 and a return of fees of 2.02. The 90 percent confidence again contained \$0, however, so it failed to achieve statistical significance.
- Gross savings estimates of were statistically significant only in Year Two of the demonstration.

11.6.5 Discussion of Effectiveness

State officials expected that the development of self-management support plans, enhanced primary care access, better management of care transitions, more aggressive patient tracking and outreach, and care management for high-risk patients would contribute to reductions in inpatient and ER utilization and costs. Practices reportedly were engaged in many of these activities during the demonstration, which may have contributed to findings that CCI practices were associated with a slowdown in the growth of overall Medicare expenditures. This slowdown and the presence of gross Medicare savings and a positive RoI relative to both CGs likely were driven by expenditure and utilization reductions in inpatient acute-care and ER visits. Although Medicaid expenditure data were not available for this evaluation, selected utilization indicators showed evidence of a slowdown in utilization among Medicaid beneficiaries in similar areas.

Despite this progress (and practices' receipt of Medicare shared savings in the demonstration's third and final year), CCI did not achieve the degree of cost and utilization reductions expected over the 3 years of the demonstration. Respondents cited several reasons for

CCI falling short of these expectations. First, they felt it likely would have taken more time to see significant cost or utilization reductions. A longer demonstration period would have given patients greater exposure to the PCMH model and practices even more time to become more sophisticated PCMHs. Second, some respondents felt that patient costs were affected by factors outside of practices' control, such as a payment system largely based on FFS, the high cost of specialty and hospital care, and the inability to direct patients to the lowest-cost hospital or specialist. For example, a main focus of CCI practices was reducing hospital readmissions and improving care transitions, but practices had varying relationships with local hospitals with regard to information sharing about patients who visit the ER or were admitted or discharged from the hospital. The exchange of information with hospitals and other providers was an important part of efforts to improve care transitions and coordinate patient care more generally. Several respondents also said that CCI held practices accountable for annual hospital and specialty cost increases for which insurers, not primary care practices, negotiated with hospitals and specialists.

11.7 Special Populations

This section describes any efforts by practices or the overall CCI to target special patient populations, according to our interviews (*Section 11.7.1*); impacts on special patient populations' expenditures, care quality, health outcomes, and service utilization, based on claims data (*Sections 11.7.2*); and a synthesis of these findings (*Section 11.7.3*).

11.7.1 Targeting of Special Populations and Tailored Interventions During the Evaluation Period

As with Phase I, practices continued to focus on patients with chronic conditions in Phase II, but added new areas of focus, including:

- preventive care (e.g., smoking status and interventions, obesity and body mass index, cancer screening and prevention, immunizations);
- additional chronic conditions (e.g., CHF); and
- high-risk patients.

11.7.2 Impacts on Special Populations

CCI was expected to improve quality of care and health outcomes, increase access to care and coordination of care, and decrease total Medicare and Medicaid expenditures for special populations of beneficiaries, including beneficiaries with conditions that could lead to higher utilization of health care (beneficiaries with multiple chronic conditions, with behavioral health conditions, with disabilities, or with a diagnosis of asthma) or those who may experience disparities in access to and quality of health care (beneficiaries who are dually eligible for Medicare and Medicaid, who live in rural areas, or who belong to racial/ethnic minorities). As mentioned in *Section 11.1* (State Implementation) of this chapter, there were differences in the implementation of the program by region. Thus, we also separate beneficiaries by their region (Northeast or Southeast) and examine them as special populations.

For these special populations where we find a statistically significant negative association between CCI and total Medicare or Medicaid expenditures, we provide additional analyses to explore the expenditures and utilization of those special populations more fully.

- **Table 11-19** reports on changes in total Medicare expenditures for the special populations expected to be affected by the demonstration.
- **Table 11-20** reports on changes in expenditures and utilization for rural Medicare beneficiaries.
- **Table 11-21** reports on changes in expenditures and utilization for Medicare beneficiaries in the Northeast region.

Estimates for expenditure measures in these tables are interpreted as the difference in the rate of growth in PBPM expenditures relative to the CGs. A *negative* value corresponds to *lower growth* in expenditures compared with the CG, whereas a positive value corresponds to *greater growth* in expenditures compared with the CG. Total increases or decreases in payments relative to the CG are reported as the *overall aggregate* in these tables.

For Medicare, estimates for the utilization measures in these table are interpreted as the difference in the rate of all-cause admissions and ER visits per 1,000 beneficiary quarters associated with the MAPCP Demonstration in either Year One, Year Two, Year Three, or all years. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG, and a *positive* value corresponds to an *increase* in the rate of events compared with the CG. Total increases or decreases in utilization (Medicare) relative to the CG are reported as the *overall aggregate* in these tables.

For dually eligible beneficiaries, we examined only total Medicare spending; we did not examine Medicaid spending or combined Medicare and Medicaid spending.

- **Tables 11-22** through **11-28** report on changes in quality of care, access to care, expenditures, and utilization for Medicare and Medicaid beneficiaries with multiple chronic conditions.
- **Tables 11-29** through **11-31** report on changes in selected expenditure and utilization measures for Medicare and Medicaid beneficiaries with behavioral health conditions.

The results presented in this section are contextualized and interpreted in conjunction with qualitative findings in **Section 11.7.3**.

Table 11-19
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Multiple chronic conditions only				
Year One (N = 7,864)	146.55	[-43.56, 336.66]	10.42	[-92.46, 113.30]
Year Two (N = 7,694)	-200.00*	[-273.22, -126.78]	-105.47*	[-199.27, -11.66]
Year Three (N = 6,723)	-170.85*	[-261.78, -79.92]	23.89	[-108.88, 156.65]
Overall (N = 9,680)	-63.96	[-152.43, 24.51]	-25.47	[-114.96, 64.01]
Overall Aggregate	-\$14,321,192		-\$5,703,323	
Behavioral health conditions only				
Year One (N = 4,483)	14.87	[-66.31, 96.06]	-49.92	[-153.53, 53.70]
Year Two (N = 4,746)	-137.18*	[-230.03, -44.33]	-54.47	[-149.83, 40.89]
Year Three (N = 4,459)	-119.97*	[-199.04, -40.91]	106.04	[-7.16, 219.24]
Overall (N = 6,156)	-80.40*	[-138.50, -22.30]	-1.59	[-83.46, 80.29]
Overall Aggregate	-\$10,830,491*		-\$213,551	
Disabled beneficiaries only				
Year One (N = 8,442)	19.42	[-34.05, 72.90]	21.14	[-33.52, 75.80]
Year Two (N = 9,257)	-34.21	[-100.90, 32.48]	-21.14	[-80.18, 37.90]
Year Three (N = 9,343)	-17.50	[-82.89, 47.89]	35.53	[-39.10, 110.16]
Overall (N = 12,097)	-11.28	[-61.62, 39.05]	11.35	[-39.27, 61.96]
Overall Aggregate	-\$2,999,803		\$3,015,881	
Dually eligible beneficiaries only				
Year One (N = 6,431)	31.89	[-55.09, 118.86]	31.02	[-45.81, 107.85]
Year Two (N = 6,961)	-60.13	[-131.16, 10.90]	-0.56	[-70.73, 69.61]
Year Three (N = 6,989)	-71.08*	[-138.03, -4.12]	13.69	[-74.55, 101.93]
Overall (N = 9,155)	-33.60	[-88.96, 21.75]	14.46	[-44.07, 72.99]
Overall Aggregate	-\$6,730,233		\$2,896,441	
Rural beneficiaries only				
Year One (N = 1,159)	38.59	[-31.99, 109.17]	-7.30	[-88.63, 74.03]
Year Two (N = 1,229)	-329.53*	[-484.96, -174.10]	38.27	[-45.38, 121.92]
Year Three (N = 1,240)	-82.84*	[-146.72, -18.96]	-87.57	[-265.32, 90.18]
Overall (N = 1,546)	-126.23*	[-171.29, -81.18]	-19.21	[-117.83, 79.42]
Overall Aggregate	-\$4,816,508*		-\$732,789	
Non-White beneficiaries only				
Year One (N = 5,358)	56.06	[-17.30, 129.42]	35.83	[-55.10, 126.75]
Year Two (N = 5,959)	-14.77	[-118.05, 88.51]	4.81	[-89.96, 99.59]
Year Three (N = 6,317)	-147.48	[-298.28, 3.32]	-15.40	[-127.50, 96.70]
Overall (N = 8,059)	-40.09	[-134.62, 54.44]	7.17	[-75.67, 90.01]
Overall Aggregate	-\$6,996,829		\$1,250,838	
Northeast region only				
Year One (N = 19,270)	19.81	[-25.39, 65.02]	-16.83	[-73.93, 40.27]
Year Two (N = 20,612)	-45.97*	[-73.64, -18.30]	-37.48	[-91.56, 16.59]
Year Three (N = 20,634)	-83.23*	[-110.16, -56.29]	-19.94	[-73.65, 33.78]
Overall (N = 25,400)	-35.64*	[-56.95, -14.33]	-25.00	[-74.71, 24.72]
Overall Aggregate	-\$21,995,784*		-\$15,428,957	

(continued)

Table 11-19 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for total
PBPM Medicare expenditures among special populations:
Twelve quarters of the MAPCP Demonstration

Population	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Southeast region only				
Year One (N = 11,095)	-11.79	[-87.22, 63.64]	3.30	[-63.55, 70.16]
Year Two (N = 12,171)	-66.48	[-143.37, 10.40]	-43.48	[-106.24, 19.28]
Year Three (N = 12,699)	-78.88	[-168.28, 10.53]	4.69	[-65.71, 75.09]
Overall (N = 16,236)	-53.69	[-130.04, 22.66]	-12.13	[-71.66, 47.41]
Overall Aggregate	-\$19,056,983		-\$4,304,117	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries belonging to these special populations, we find evidence that CCI slowed the growth of Medicare expenditures among three groups: beneficiaries with behavioral health conditions, rural beneficiaries, and beneficiaries in the Northeast region (which is dominated by Geisinger Health System). However, there were inconsistencies in the statistical significance of these findings across CGs, as these effects were only found with reference to the PCMH CG. Specifically, **Table 11-19** shows the following:

- Although the growth in *overall aggregate* total Medicare expenditures for **beneficiaries with multiple chronic conditions** was not statistically significant, the negative estimates in Years Two and Three suggested a potential trend toward lower growth in total Medicare expenditures when beneficiaries attributed to CCI practices were compared with beneficiaries assigned to PCMH practices.
- Among Medicare **beneficiaries with behavioral health conditions**, the growth in *overall aggregate* total Medicare expenditures was \$10.8 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.

- Among Medicare **rural beneficiaries**, the growth in *overall aggregate* total Medicare expenditures was \$4.82 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare **beneficiaries in the Northeast region**, the growth in *overall aggregate* total Medicare expenditures was \$22.0 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts of CCI on total Medicare expenditures were observed among disabled beneficiaries, dually eligible beneficiaries, non-White beneficiaries, and beneficiaries assigned to CCI practices in the Southeast region. Also, no statistically significant overall impacts of CCI on total Medicare expenditures were observed for any of the special populations when compared with similar beneficiaries assigned to non-PCMH practices. Relative to similar Medicare beneficiaries assigned to practices in the PCMH CG, CCI slowed the growth of Medicare expenditures for rural beneficiaries (see **Table 11-20**), beneficiaries in the Northeast region (see **Table 11-21**), and beneficiaries with behavioral health conditions (see **Tables 11-29, 11-30, and 11-31**).

Table 11-20 shows that the slower growth in total Medicare expenditures among rural beneficiaries was largely driven by lower growth in acute-care expenditures, although expenditures for ER visits not leading to hospitalization and primary care physician expenditures were also statistically significantly lower.

Table 11-20
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among rural Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs	
	Average estimate	90% confidence interval
Total Medicare expenditures		
Year One (N = 1,159)	38.59	[-31.99, 109.17]
Year Two (N = 1,229)	-329.53*	[-484.96, -174.10]
Year Three (N = 1,240)	-82.84*	[-146.72, -18.96]
Overall (N = 1,546)	-126.23*	[-171.29, -81.18]
Overall Aggregate	-\$4,816,508*	
Acute-care expenditures		
Year One (N = 1,159)	7.18	[-37.72, 52.08]
Year Two (N = 1,229)	-265.32*	[-368.63, -162.01]
Year Three (N = 1,240)	-100.25*	[-136.73, -63.77]
Overall (N = 1,546)	-120.78*	[-145.87, -95.69]
Overall Aggregate	-\$4,608,332*	

(continued)

Table 11-20 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among rural Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs	
	Average estimate	90% confidence interval
ER visits not leading to hospitalization (expenditures)		
Year One (N = 1,159)	0.19	[-3.27, 3.66]
Year Two (N = 1,229)	-2.45*	[-4.77, -0.12]
Year Three (N = 1,240)	-5.13*	[-9.01, -1.26]
Overall (N = 1,546)	-2.50*	[-4.14, -0.86]
Overall Aggregate	-\$95,377*	
Specialty physician expenditures		
Year One (N = 1,159)	20.22	[-5.03, 45.47]
Year Two (N = 1,229)	-27.51*	[-42.99, -12.04]
Year Three (N = 1,240)	20.79*	[5.79, 35.78]
Overall (N = 1,546)	4.38	[-10.94, 19.69]
Overall Aggregate	\$167,056	
Primary care physician expenditures		
Year One (N = 1,159)	-2.00	[-5.67, 1.67]
Year Two (N = 1,229)	-14.33*	[-20.74, -7.93]
Year Three (N = 1,240)	-9.90*	[-12.76, -7.04]
Overall (N = 1,546)	-8.82*	[-11.74, -5.90]
Overall Aggregate	-\$336,596*	
All-cause admissions		
Year One (N = 1,159)	9.27	[-21.22, 39.76]
Year Two (N = 1,229)	-52.79	[-199.29, 93.72]
Year Three (N = 1,240)	-31.29	[-116.26, 53.68]
Overall (N = 1,546)	-25.32	[-94.26, 43.61]
Overall Aggregate	-322	
ER visits not leading to hospitalization		
Year One (N = 1,159)	2.91	[-17.50, 23.32]
Year Two (N = 1,229)	-9.50	[-64.88, 45.88]
Year Three (N = 1,240)	-18.63	[-122.03, 84.78]
Overall (N = 1,546)	-8.56	[-57.82, 40.70]
Overall Aggregate	-109	

(continued)

Table 11-20 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among rural Medicare beneficiaries:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs	
	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 189)	-50.27	[-518.80, 418.26]
Year Two (N = 177)	-172.81	[-1805.07, 1459.44]
Year Three (N = 134)	30.30	[-269.45, 330.04]
Overall (N = 407)	-71.16	[-737.85, 595.54]
Overall Aggregate	-905	

NOTES:

- Acute-care expenditures and ER expenditure measures are PBPM.
- Estimates for the first two outcomes are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- All-cause admissions, ER visits not leading to hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique CCI PCMH participants eligible for the measure.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among MAPCP Demonstration beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For rural Medicare beneficiaries assigned to CCI practices, **Table 11-20** shows the following:

- Among rural Medicare beneficiaries assigned to CCI practices, the *overall* growth in **acute-care expenditures** was \$4.6 million lower compared with rural beneficiaries assigned to PCMH practices.
- Among rural Medicare beneficiaries assigned to CCI practices, the *overall* growth in **expenditures for ER visits not leading to hospitalization** was approximately \$95,000 lower compared with rural beneficiaries assigned to PCMH practices.
- Among rural Medicare beneficiaries assigned to CCI practices, the *overall* growth in **primary care physician expenditures** was approximately \$336,000 lower compared with rural beneficiaries assigned to PCMH practices.

No statistically significant overall results were observed among rural Medicare beneficiaries assigned to CCI practices for the overall growth in specialty physician expenditures or for overall rates of all-cause inpatient admissions, ER visits not leading to hospitalization, or 30-day unplanned readmissions compared with beneficiaries assigned to PCMH practices.

Table 11-20 shows that the lower growth in total Medicare expenditures among beneficiaries in the Northeast region was largely driven by lower growth in acute-care expenditures, although expenditures for ER visits not leading to hospitalization and primary care physician expenditures were also statistically significantly lower.

Table 11-21
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries in the Northeast region: Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs	
	Average estimate	90% confidence interval
Total Medicare expenditures		
Year One (N = 19,270)	19.81	[-25.39, 65.02]
Year Two (N = 20,612)	-45.97*	[-73.64, -18.30]
Year Three (N = 20,634)	-83.23*	[-110.16, -56.29]
Overall (N = 25,400)	-35.64*	[-56.95, -14.33]
Overall Aggregate	-\$21,995,784*	
Acute-care expenditures		
Year One (N = 19,270)	-10.19	[-29.15, 8.77]
Year Two (N = 20,612)	-34.42*	[-48.62, -20.22]
Year Three (N = 20,634)	-42.93*	[-56.47, -29.39]
Overall (N = 25,400)	-28.97*	[-39.58, -18.35]
Overall Aggregate	-\$17,878,960*	
ER visits not leading to hospitalization (expenditures)		
Year One (N = 19,270)	-1.10	[-4.48, 2.28]
Year Two (N = 20,612)	-2.51*	[-3.55, -1.47]
Year Three (N = 20,634)	-2.99*	[-4.55, -1.43]
Overall (N = 25,400)	-2.19*	[-3.74, -0.64]
Overall Aggregate	-\$1,350,188*	
Specialty physician expenditures		
Year One (N = 19,270)	4.90	[-0.26, 10.05]
Year Two (N = 20,612)	11.59*	[8.56, 14.63]
Year Three (N = 20,634)	1.63	[-1.74, 5.00]
Overall (N = 25,400)	6.20*	[3.34, 9.05]
Overall Aggregate	\$3,824,179*	

(continued)

Table 11-21 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for selected expenditure and utilization measures among Medicare beneficiaries in the Northeast region:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs	
	Average estimate	90% confidence interval
Primary care physician expenditures		
Year One (N = 19,270)	0.19	[-1.50, 1.88]
Year Two (N = 20,612)	-4.34*	[-6.66, -2.02]
Year Three (N = 20,634)	-9.62*	[-12.14, -7.10]
Overall (N = 25,400)	-4.49*	[-6.55, -2.43]
Overall Aggregate	-\$2,769,290*	
All-cause admissions		
Year One (N = 19,270)	-0.47	[-4.19, 3.24]
Year Two (N = 20,612)	-9.62*	[-14.52, -4.72]
Year Three (N = 20,634)	-8.82*	[-12.89, -4.76]
Overall (N = 25,400)	-6.29*	[-9.57, -3.02]
Overall Aggregate	-1,295*	
ER visits not leading to a hospitalization		
Year One (N = 19,270)	3.22	[-4.18, 10.62]
Year Two (N = 20,612)	0.34	[-4.48, 5.16]
Year Three (N = 20,634)	1.51	[-5.40, 8.41]
Overall (N = 25,400)	1.68	[-3.93, 7.28]
Overall Aggregate	345	
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)		
Year One (N = 3,504)	-0.34	[-23.27, 22.58]
Year Two (N = 3,437)	-10.91	[-25.78, 3.97]
Year Three (N = 2,512)	2.35	[-14.82, 19.52]
Overall (N = 7,349)	-3.55	[-15.56, 8.45]
Overall Aggregate	-731	

NOTES:

- Numbers in parentheses represent sample sizes of unique Blueprint for Health participants eligible for the measure.
- Total Medicare expenditures and expenditures for acute care, ER visits not leading to hospitalization, primary care physicians, and specialty physicians are PBPM expenditures.
- Estimates for the first five outcomes are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- All-cause admissions, ER visits not leading to a hospitalization, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters.
- Estimates for the last three outcomes in this table are interpreted as the difference in the rate of events among Blueprint for Health beneficiaries in a specific year or across the demonstration overall. The demonstration period for this report includes 14 quarters, and quarters 13 and 14 are included in the Overall estimate. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments or utilization relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

For Medicare beneficiaries assigned to CCI practices in the Northeast region, *Table 11-21* shows the following:

- The growth in *overall aggregate acute-care expenditures* for Medicare beneficiaries assigned to CCI practices in the Northeast region was \$17.9 million lower relative to beneficiaries assigned to Northeast PCMH practices in the CG.
- The growth in *overall aggregate expenditures for ER visits not leading to hospitalization* for Medicare beneficiaries assigned to CCI practices in the Northeast region was \$1.4 million lower relative to beneficiaries assigned to Northeast PCMH practices in the CG.
- The growth in *overall aggregate primary care physician expenditures* for Medicare beneficiaries assigned to CCI practices in the Northeast region was \$2.8 million lower relative to beneficiaries assigned to Northeast PCMH practices in the CG.
- The growth in *overall aggregate expenditures for specialty care physicians* was \$3.8 million greater for Medicare beneficiaries assigned to CCI practices in the Northeast region than among beneficiaries assigned to Northeast PCMH practices in the CG.
- **All-cause admissions** decreased by an *overall aggregate* of 1,295 visits among Medicare beneficiaries assigned to CCI practices in the Northeast region compared with beneficiaries assigned to Northeast PCMH practices in the CG.

Beneficiaries with Multiple Chronic Conditions

As the demonstration progressed, some practices reported that they were more proactively targeting high-risk patients, who accounted for most costs. Particularly in the latter years of the demonstration, practices tried to target high-need patients more effectively for care management services using their health IT systems and to manage their patients' transitions from the hospital to the community more proactively. These practices thought that they could reduce costs for some but not all of their high-risk patients, as some had clinical conditions and social circumstances likely to be improved, whereas others seemed less likely to change or respond to interventions.

The algorithms used by payers to define high-risk patients varied, and practices used the data on high-risk patients provided by each plan, in addition to their own EHR and disease registry data, to target patients for care management in different ways. Some practices found the reports produced by payers to be very helpful for identifying high-risk patients in need of care management services. Others said that the reports were too long to be useful or that the clinical information was less accurate than data the practices had themselves; these practices preferred to use their EHR system to identify high-risk patients.

Because we did not have access to high-risk patient lists that practices used, we defined the Medicare multiple chronic condition group as beneficiaries who have three or more chronic conditions present in 2 consecutive years of Medicare claims and who are in the CMS HCC

high-risk category. Additional details about the chronic conditions and the CMS HCC high-risk category can be found in *Appendix D*. Over the 12 quarters of the demonstration, 21 percent of CCI Medicare beneficiaries (demonstration and CGs) fit this profile in Pennsylvania.

For Medicaid beneficiaries, the multiple chronic condition group is defined as beneficiaries with three or more chronic conditions present in the year before their entrance into the MAPCP Demonstration (or CG). Over the course of the demonstration, 28 percent of adult Medicaid beneficiaries (demonstration and CGs) fit this profile. Children with multiple chronic conditions were not examined due to the relatively low prevalence of multiple chronic conditions among children.

CCI was expected to improve quality of care and health outcomes for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid quality-of-care and health-outcome measures between CCI practices and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 11-22** reports on changes in six process-of-care measures among Medicare beneficiaries with multiple chronic conditions and diabetes and on one process-of-care measure for beneficiaries with multiple chronic conditions and IVD.
- **Table 11-23** reports on differences among Medicare beneficiaries in the rates of avoidable catastrophic events and PQI admissions per 1,000 beneficiary quarters.

See *Section 11.3.2* for further discussion of the interpretation of these measures.

Table 11-22
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for process-of-care indicators among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
HbA1c testing				
Year One (N = 2,306)	0.37	[-1.56, 2.29]	2.01*	[0.39, 3.63]
Year Two (N = 1,581)	-0.79	[-2.51, 0.93]	-0.83	[-3.25, 1.59]
Year Three (N = 1,038)	-0.10	[-4.71, 4.50]	-4.79*	[-7.82, -1.75]
Overall (N = 2,441)	-0.10	[-2.04, 1.84]	-0.33	[-2.03, 1.36]
Retinal eye examination				
Year One (N = 2,306)	3.00*	[1.32, 4.68]	1.10	[-1.61, 3.80]
Year Two (N = 1,581)	-0.56	[-3.78, 2.66]	-1.52	[-5.16, 2.11]
Year Three (N = 1,038)	-4.03*	[-7.41, -0.66]	-2.69	[-6.88, 1.51]
Overall (N = 2,441)	0.37	[-1.51, 2.25]	-0.54	[-2.90, 1.82]

(continued)

Table 11-22 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
process-of-care indicators among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
LDL-C screening				
Year One (N = 2,306)	1.77	[-0.06, 3.60]	2.06	[-0.26, 4.39]
Year Two (N = 1,581)	0.11	[-2.92, 3.15]	0.53	[-3.01, 4.07]
Year Three (N = 1,038)	-0.43	[-4.71, 3.85]	-3.71	[-7.74, 0.32]
Overall (N = 2,441)	0.78	[-1.05, 2.60]	0.35	[-2.17, 2.88]
Medical attention for nephropathy				
Year One (N = 2,306)	-4.34*	[-7.06, -1.62]	2.17*	[0.17, 4.17]
Year Two (N = 1,581)	-6.89*	[-10.18, -3.59]	-1.51	[-3.67, 0.66]
Year Three (N = 1,038)	-5.76*	[-8.80, -2.72]	-2.44	[-5.54, 0.66]
Overall (N = 2,441)	-5.46*	[-8.14, -2.78]	0.02	[-1.66, 1.70]
Received all 4 diabetes tests				
Year One (N = 2,306)	-1.73	[-4.50, 1.04]	2.73	[-0.44, 5.90]
Year Two (N = 1,581)	-6.07*	[-8.93, -3.21]	-2.20	[-6.38, 1.99]
Year Three (N = 1,038)	-7.05*	[-11.49, -2.60]	-4.75	[-10.22, 0.73]
Overall (N = 2,441)	-4.24*	[-6.97, -1.52]	-0.43	[-3.56, 2.71]
Received none of the 4 diabetes tests				
Year One (N = 2,306)	-0.58	[-1.45, 0.30]	0.20	[-0.48, 0.88]
Year Two (N = 1,581)	-0.03	[-0.90, 0.83]	0.54	[-0.29, 1.36]
Year Three (N = 1,038)	0.64	[-0.75, 2.02]	1.44*	[0.31, 2.57]
Overall (N = 2,441)	-0.15	[-0.96, 0.67]	0.57	[-0.07, 1.21]
Total lipid panel				
Year One (N = 4,607)	0.10	[-2.96, 3.15]	-0.23	[-2.37, 1.90]
Year Two (N = 3,155)	0.08	[-2.47, 2.63]	-0.49	[-3.54, 2.56]
Year Three (N = 2,229)	3.27	[-2.43, 8.96]	-4.19	[-8.56, 0.18]
Overall (N = 5,204)	0.80	[-2.28, 3.88]	-1.20	[-3.75, 1.35]

NOTES:

- All measures are annual, dichotomous (yes/no) outcomes.
 - Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
 - Estimates in this table are interpreted as the percentage point difference in the likelihood of meeting the quality indicator among CCI Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of meeting the quality indicator compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of meeting the quality indicator compared with the CG.
- CCI = Chronic Care Initiative; CG = comparison group; LDL-C = low-density lipoprotein cholesterol; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.
- * Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that CCI impacted the likelihood of some of process-of-care measures, although there were inconsistencies in the statistical significance across CGs. Specifically, **Table 11-22** shows the following:

- Among Medicare beneficiaries who have diabetes and multiple chronic conditions, the *overall* likelihood of receiving **medical attention for nephropathy** or **all four diabetes tests** decreased among CCI beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.

No statistically significant *overall* changes were observed for the measures of HbA1c testing, retinal eye examination, LDL-C screening, receipt of no diabetes tests, or total lipid panels.

Table 11-23
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Avoidable catastrophic events ¹				
Year One (N = 7,864)	-1.23	[-3.58, 1.11]	0.75	[-1.19, 2.69]
Year Two (N = 7,694)	-4.69*	[-7.77, -1.61]	0.45	[-1.49, 2.39]
Year Three (N = 6,723)	-1.52	[-4.80, 1.76]	3.79*	[0.57, 7.02]
Overall (N = 9,680)	-2.50*	[-4.56, -0.45]	1.53	[-0.11, 3.16]
PQI admissions—overall ²				
Year One (N = 7,864)	5.45*	[0.89, 10.02]	1.97	[-2.39, 6.33]
Year Two (N = 7,694)	-3.42	[-7.11, 0.27]	0.09	[-4.31, 4.50]
Year Three (N = 6,723)	-8.61*	[-14.08, -3.14]	-0.41	[-4.61, 3.79]
Overall (N = 9,680)	-1.65	[-4.65, 1.35]	0.64	[-3.11, 4.39]
PQI admissions—acute ³				
Year One (N = 7,864)	1.28	[-1.18, 3.74]	0.05	[-1.93, 2.02]
Year Two (N = 7,694)	0.91	[-1.05, 2.87]	-0.22	[-2.17, 1.73]
Year Three (N = 6,723)	-1.83	[-4.16, 0.49]	-0.93	[-2.95, 1.09]
Overall (N = 9,680)	0.26	[-1.36, 1.88]	-0.33	[-1.84, 1.19]

(continued)

Table 11-23 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for health outcomes among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
PQI admissions—chronic ⁴				
Year One (N = 7,864)	3.66*	[0.93, 6.39]	1.88	[-1.06, 4.82]
Year Two (N = 7,694)	-4.47*	[-8.11, -0.84]	0.17	[-3.19, 3.53]
Year Three (N = 6,723)	-6.42*	[-10.62, -2.22]	0.36	[-3.02, 3.74]
Overall (N = 9,680)	-2.04	[-4.38, 0.30]	0.85	[-1.90, 3.61]

NOTES:

- All measures are rates per 1,000 beneficiary quarters.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the rate of events among CCI Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

¹ Defined as inpatient encounters with the following primary diagnoses: hip fracture, acute myocardial infarction, acute cerebrovascular accident (stroke), and sepsis.

² Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, bacterial pneumonia, urinary tract infection, dehydration, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

³ Defined as inpatient admissions for bacterial pneumonia, urinary tract infection, and dehydration.

⁴ Defined as inpatient admissions for diabetes short-term complications, diabetes long-term complications, uncontrolled diabetes, COPD or asthma in older adults, angina without procedure, hypertension, asthma in younger adults, and lower-extremity amputation among patients with diabetes.

CCI = Chronic Care Initiative; CG = comparison group; COPD = chronic obstructive pulmonary disease; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; PQI = Prevention Quality Indicator.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found some evidence that CCI decreased the rates of preventable hospitalizations, although statistical significance was not seen across both CGs. Specifically, **Table 11-23** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **avoidable catastrophic events** decreased among CCI beneficiaries compared with beneficiaries assigned to PCMH comparison practices only.
- Among Medicare beneficiaries with multiple chronic conditions, the negative estimates for the rate of **chronic PQI admissions** in Years Two and Three suggested a potential trend toward a decrease in the rate for beneficiaries assigned to CCI compared with PCMH practices, although the overall rate did not change.

No statistically significant *overall* changes were observed in the measures of overall and acute PQI admissions.

CCI was expected to improve access to and coordination of care for beneficiaries with multiple chronic conditions. This section reports covariate-adjusted differences in selected Medicare and Medicaid access-to-care and care-coordination measures between CCI practices and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 11-24** reports on changes in seven access-to-care and care-coordination measures among Medicare beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, follow-up visits within 14 days after hospital discharge, 30-day unplanned hospital readmissions, and the COC Index.
- **Table 11-25** reports on changes in five access-to-care and care-coordination measures among Medicaid beneficiaries with multiple chronic conditions: primary care visits, medical specialist visits, surgical specialist visits, primary care visits per year as a percentage of the total number of ambulatory care visits, and 30-day unplanned hospital readmissions.

See **Section 11.4.2** for further discussion of the interpretation of these measures.

Table 11-24
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits (per 1,000 beneficiary quarters)				
Year One (N = 7,864)	150.37*	[58.10, 242.65]	146.50*	[74.54, 218.46]
Year Two (N = 7,694)	104.72*	[40.90, 168.55]	98.88*	[27.69, 170.08]
Year Three (N = 6,723)	76.22	[-15.07, 167.51]	99.83*	[14.86, 184.79]
Overall (N = 9,680)	113.31*	[39.75, 186.88]	116.69*	[46.51, 186.87]
Medical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 7,864)	-40.96	[-96.77, 14.85]	-5.12	[-60.46, 50.23]
Year Two (N = 7,694)	-2.73	[-89.98, 84.52]	-5.38	[-70.40, 59.63]
Year Three (N = 6,723)	54.11	[-29.67, 137.89]	64.96	[-3.99, 133.92]
Overall (N = 9,680)	-0.41	[-68.57, 67.75]	15.01	[-41.24, 71.26]
Surgical specialist visits (per 1,000 beneficiary quarters)				
Year One (N = 7,864)	-19.93	[-43.08, 3.22]	7.75	[-6.88, 22.37]
Year Two (N = 7,694)	-14.48	[-34.97, 6.01]	1.35	[-14.94, 17.64]
Year Three (N = 6,723)	1.01	[-16.20, 18.21]	4.21	[-13.53, 21.96]
Overall (N = 9,680)	-12.02	[-28.85, 4.81]	4.53	[-8.65, 17.72]
Primary care visits as percent of total visits (higher quintile = larger percentage)				
Year One (N = 8,599)				
1st quintile	-0.92	[-2.52, 0.68]	-1.29	[-2.85, 0.28]
5th quintile	0.94	[-0.70, 2.57]	1.34	[-0.32, 2.99]
Year Two (N = 6,019)				
1st quintile	-1.69	[-4.10, 0.72]	-1.43	[-2.91, 0.04]
5th quintile	1.55	[-0.58, 3.69]	1.37	[-0.04, 2.79]
Year Three (N = 4,107)				
1st quintile	1.20	[-2.75, 5.15]	0.00	[-1.94, 1.93]
5th quintile	-1.11	[-4.91, 2.68]	0.00	[-1.75, 1.75]
Overall (N = 8,786)				
1st quintile	-0.70	[-2.97, 1.57]	-1.05	[-2.48, 0.38]
5th quintile	0.68	[-1.47, 2.84]	1.06	[-0.36, 2.47]
Follow-up visit within 14 days after discharge (per 1,000 beneficiaries with a live discharge)				
Year One (N = 2,288)	38.33	[-5.43, 82.10]	27.72	[-11.23, 66.67]
Year Two (N = 1,916)	91.88*	[12.42, 171.34]	39.98	[-1.25, 81.21]
Year Three (N = 1,352)	76.48	[-10.41, 163.38]	-9.07	[-56.32, 38.18]
Overall (N = 4,132)	65.84*	[3.71, 127.97]	23.64	[-6.14, 53.42]

(continued)

Table 11-24 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicare beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
30-day unplanned readmissions (per 1,000 beneficiaries with a live discharge)				
Year One (N = 2,773)	-17.69	[-53.51, 18.13]	-9.85	[-39.38, 19.68]
Year Two (N = 2,335)	-16.61	[-43.19, 9.98]	-14.31	[-42.31, 13.69]
Year Three (N = 1,684)	-6.63	[-43.13, 29.87]	13.83	[-15.32, 42.97]
Overall (N = 4,914)	-14.77	[-34.97, 5.44]	-5.97	[-27.97, 16.03]
COC Index (higher quintile = better coordination of care)				
Year One (N = 9,240)				
1st quintile	0.27	[-0.64, 1.19]	-0.06	[-1.09, 0.97]
5th quintile	-0.30	[-1.27, 0.68]	0.06	[-1.05, 1.18]
Year Two (N = 6,602)				
1st quintile	-0.80	[-2.48, 0.88]	-1.56	[-3.31, 0.18]
5th quintile	0.92	[-1.02, 2.86]	1.76	[-0.20, 3.73]
Year Three (N = 4,615)				
1st quintile	0.42	[-3.09, 3.92]	-1.09	[-3.38, 1.19]
5th quintile	-0.48	[-4.58, 3.62]	1.20	[-1.34, 3.73]
Overall (N = 9,386)				
1st quintile	-0.04	[-1.48, 1.40]	-0.78	[-2.14, 0.58]
5th quintile	0.05	[-1.60, 1.71]	0.87	[-0.65, 2.38]

NOTES:

- Office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are rates per 1,000 beneficiary quarters. Primary care visits as a percentage of total visits and COC Index are measures ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Estimates for office visits, follow-up visits within 14 days of discharge, and 30-day unplanned readmissions are interpreted as the difference in the rate of events among CCI Medicare beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Estimates for primary care visits as a percentage of total and the COC Index are interpreted as the percentage point difference associated with CCI in the probability of observing a value in either the lowest (first) quintile or highest (fifth) quintile of the distribution in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in either the lowest (first) quintile or highest (fifth) quintile compared with the CG.
- Except for annual outcomes (primary care visits as a percentage of total visits and COC Index), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; COC = Continuity of Care; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found little evidence that CCI impacted the access-to-care and care-coordination measures, with the exception of primary care visits and follow-up visits within 14 days after discharge, and there were inconsistencies in the statistical significant across CGs. Specifically, **Table 11-24** shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **primary care visits** increased among CCI beneficiaries compared with beneficiaries assigned to either PCMH or non-PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the *overall* rate of **follow-up visits within 14 days after discharge** increased among CCI beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for the measures of medical specialist and surgical specialist visits, primary care visits as a percentage of total visits, 30-day unplanned readmissions, and continuity of care.

Table 11-25
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

	Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Primary care visits					
Year One	4,365	-1.13	[-10.51, 8.24]	-4.61	[-9.26, 0.04]
Year Two	2,884	-2.29	[-13.02, 8.44]	-0.80	[-9.13, 7.53]
Year Three	2,226	0.39	[-9.54, 10.32]	-2.38	[-7.67, 2.91]
Overall	4,949	-1.14	[-10.27, 7.99]	-2.89	[-8.45, 2.67]
Medical specialist visits					
Year One	4,365	-0.81	[-4.57, 2.95]	-1.64	[-4.67, 1.39]
Year Two	2,884	-0.60	[-5.60, 4.40]	-0.43	[-4.07, 3.22]
Year Three	2,226	-2.65	[-8.78, 3.47]	-1.31	[-4.77, 2.15]
Overall	4,949	-1.18	[-5.18, 2.83]	-1.18	[-4.30, 1.94]
Surgical specialist visits					
Year One	4,365	0.60	[-1.84, 3.04]	0.30	[-1.12, 1.73]
Year Two	2,884	-0.30	[-2.69, 2.09]	0.44	[-0.56, 1.44]
Year Three	2,226	-0.58	[-4.39, 3.22]	0.24	[-1.15, 1.62]
Overall	4,949	0.04	[-2.53, 2.61]	0.33	[-0.78, 1.45]
Primary care visits as percentage of total visits (% PC)					
Year One					
% PC < 70%	2,175	-6.82	[-17.20, 3.57]	1.51	[-3.09, 6.10]
70% ≤ % PC < 100%		2.58	[-1.90, 7.06]	-0.54	[-2.16, 1.08]
% PC = 100%		4.24	[-1.71, 10.18]	-0.97	[-3.95, 2.02]

(continued)

Table 11-25 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for access to care and coordination of care among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

	Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average Estimate	90% confidence interval	Average estimate	90% confidence interval
Year Two					
% PC < 70%	1,430	-14.44	[-35.22, 6.34]	-3.54	[-8.93, 1.84]
70% ≤ % PC < 100%		5.92	[-3.67, 15.51]	1.34	[-0.83, 3.51]
% PC = 100%		8.52	[-2.74, 19.78]	2.20	[-1.06, 5.47]
Year Three					
% PC < 70%	943	-18.46*	[-31.99, -4.94]	-1.47	[-6.90, 3.96]
70% ≤ % PC < 100%		7.33*	[1.16, 13.49]	0.49	[-1.35, 2.32]
% PC = 100%		11.14*	[3.61, 18.67]	0.98	[-2.62, 4.59]
Overall					
% PC < 70%	2,458	-11.63*	[-20.05, -3.20]	-0.70	[-4.85, 3.45]
70% ≤ % PC < 100%		4.61*	[0.70, 8.53]	0.26	[-1.25, 1.78]
% PC = 100%		7.01*	[2.41, 11.62]	0.44	[-2.20, 3.07]
30-day unplanned readmissions					
Year One	932	-1.73	[-8.57, 5.11]	0.19	[-1.59, 1.98]
Year Two	574	-2.76	[-10.53, 5.00]	1.20	[-0.78, 3.19]
Year Three	394	0.42	[-2.36, 3.19]	-0.32	[-1.73, 1.09]
Overall	1,415	-1.65	[-7.58, 4.29]	0.41	[-0.80, 1.61]

NOTES:

- Office visits and 30-day unplanned readmissions are quarterly, dichotomous (yes/no) outcomes. Primary care visits as a percentage of total visits is a measure ranging from 0 to 1. For these 0-to-1 measures, we report results on the probability of being in the lowest or highest quintiles of the distribution.
- N represents sample sizes of unique CCI Medicaid participants eligible for the measure.
- Estimates for office visits and 30-day unplanned readmissions are interpreted as the difference in the likelihood of events occurring among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Estimates for primary care visits as a percentage of total are interpreted as the percentage point difference associated with CCI in the probability of observing fewer than 70 percent of visits in primary care settings, at least 70 percent but fewer than 100 percent of visits in primary care settings, or exactly 100 percent of visits in primary care settings. A *negative* value corresponds to a *decrease* in the likelihood of observing a value in the category compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of observing a value in the category compared with the CG.
- Except for primary care visits as a percentage of total visits (an annual outcome), Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined given the relatively low prevalence of multiple chronic conditions among children.

CCI = Chronic Care Initiative; CG = comparison group; MAPCP = Multi-Payer Advanced Primary Care Practice; PC = primary care; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among adult Medicaid beneficiaries with multiple chronic conditions, we found little evidence that CCI impacted the access-to-care and care-coordination measures, with the exception of primary care visits as a share of total visits. Specifically, **Table 11-25** shows the following:

- Among adult Medicaid beneficiaries with multiple chronic conditions, **primary care visits as a share of total visits** increased among CCI beneficiaries compared with beneficiaries assigned to PCMH practices. Specifically, CCI decreased the *overall* likelihood that a demonstration beneficiary had fewer than 70 percent of all his or her visits in primary care settings and increased the *overall* likelihood that a demonstration beneficiary had 100 percent of all his or her visits in primary care settings.

No statistically significant *overall* impacts were observed for the measures of primary care, medical specialist, and surgical specialist visits and 30- day unplanned readmissions.

CCI was expected to decrease the use of some services while increasing the use of others among beneficiaries with multiple chronic conditions. Overall, however, the demonstration is intended to decrease total Medicare and Medicaid expenditures. This section reports covariate-adjusted differences in selected Medicare and Medicaid expenditure and utilization outcomes between CCI practices and two CGs: PCMHs and non-PCMHs. Both the PCMH and non-PCMH CGs are limited to beneficiaries with multiple chronic conditions.

- **Table 11-26** reports on changes in total *Medicare expenditures* and specific categories of expenditures expected to be affected by the demonstration among beneficiaries with multiple chronic conditions.
- **Table 11-27** reports on changes in *all-cause admissions and all-cause ER visits* among Medicare beneficiaries with multiple chronic conditions.
- **Table 11-28** reports on changes in *all-cause admissions and all-cause ER visits* among Medicaid beneficiaries with multiple chronic conditions.

See **Section 11.6.2** for further discussion of the interpretation of these measures.

Table 11-26
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 7,864)	146.55	[-43.56, 336.66]	10.42	[-92.46, 113.30]
Year Two (N = 7,694)	-200.00*	[-273.22, -126.78]	-105.47*	[-199.27, -11.66]
Year Three (N = 6,723)	-170.85*	[-261.78, -79.92]	23.89	[-108.88, 156.65]
Overall (N = 9,680)	-63.96	[-152.43, 24.51]	-25.47	[-114.96, 64.01]
Overall Aggregate	-\$14,321,192		-\$5,703,323	
Acute care				
Year One (N = 7,864)	35.50	[-27.37, 98.38]	0.12	[-55.55, 55.79]
Year Two (N = 7,694)	-76.99*	[-116.01, -37.97]	-19.34	[-75.47, 36.79]
Year Three (N = 6,723)	-92.84*	[-148.47, -37.21]	44.62	[-38.08, 127.32]
Overall (N = 9,680)	-40.13*	[-78.86, -1.40]	6.28	[-44.27, 56.83]
Overall Aggregate	-\$8,985,792*		\$1,405,889	
Post-acute care				
Year One (N = 7,864)	63.69*	[17.58, 109.81]	12.19	[-26.99, 51.37]
Year Two (N = 7,694)	-58.38*	[-95.61, -21.14]	-49.80*	[-84.00, -15.61]
Year Three (N = 6,723)	-44.64*	[-72.42, -16.85]	-0.78	[-40.55, 38.98]
Overall (N = 9,680)	-9.46	[-29.93, 11.02]	-12.83	[-44.02, 18.35]
Overall Aggregate	-\$2,117,153		-\$2,873,397	
ER visits not leading to hospitalization				
Year One (N = 7,864)	2.03	[-10.76, 14.82]	-0.70	[-4.14, 2.74]
Year Two (N = 7,694)	-8.28*	[-11.12, -5.45]	-3.36*	[-6.49, -0.23]
Year Three (N = 6,723)	-0.61	[-5.06, 3.84]	-0.10	[-4.37, 4.17]
Overall (N = 9,680)	-2.27	[-8.58, 4.03]	-1.44	[-4.35, 1.47]
Overall Aggregate	-\$508,845		-\$322,553	
Outpatient				
Year One (N = 7,864)	-6.97	[-29.90, 15.96]	0.76	[-17.45, 18.96]
Year Two (N = 7,694)	-44.62*	[-60.36, -28.87]	-12.50	[-31.37, 6.37]
Year Three (N = 6,723)	-16.42	[-35.43, 2.59]	-6.38	[-36.55, 23.79]
Overall (N = 9,680)	-22.62*	[-38.89, -6.35]	-5.85	[-22.64, 10.93]
Overall Aggregate	-\$5,064,483*		-\$1,310,985	
Specialty physician				
Year One (N = 7,864)	13.99	[-10.76, 38.73]	-11.04	[-26.18, 4.10]
Year Two (N = 7,694)	2.09	[-15.43, 19.60]	-18.77*	[-31.76, -5.78]
Year Three (N = 6,723)	2.32	[-12.68, 17.32]	-4.13	[-18.85, 10.60]
Overall (N = 9,680)	6.54	[-11.76, 24.84]	-11.70	[-23.67, 0.27]
Overall Aggregate	\$1,463,671		-\$2,619,580	
Primary care physician				
Year One (N = 7,864)	4.68*	[0.30, 9.06]	0.06	[-4.31, 4.42]
Year Two (N = 7,694)	-8.62*	[-13.42, -3.81]	-5.72*	[-10.22, -1.21]
Year Three (N = 6,723)	-12.64*	[-22.12, -3.17]	-4.58	[-10.45, 1.29]
Overall (N = 9,680)	-4.88*	[-8.72, -1.04]	-3.26	[-7.36, 0.83]
Overall Aggregate	-\$1,092,892*		-\$730,767	
Home health				
Year One (N = 7,864)	9.33	[-1.71, 20.37]	2.88	[-7.16, 12.91]
Year Two (N = 7,694)	-9.22	[-20.19, 1.76]	-10.17	[-22.96, 2.63]
Year Three (N = 6,723)	3.55	[-3.84, 10.94]	-10.38	[-26.73, 5.97]
Overall (N = 9,680)	1.30	[-7.07, 9.66]	-5.43	[-17.01, 6.16]
Overall Aggregate	\$290,088		-\$1,214,884	

(continued)

Table 11-26 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
expenditures among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Other non-facility				
Year One (N = 7,864)	-6.68	[-26.75, 13.40]	-8.13	[-19.52, 3.26]
Year Two (N = 7,694)	-8.12	[-23.52, 7.29]	-4.80	[-17.18, 7.57]
Year Three (N = 6,723)	-0.04	[-7.11, 7.03]	-4.57	[-17.91, 8.76]
Overall (N = 9,680)	-5.26	[-16.95, 6.44]	-5.96	[-15.89, 3.96]
Overall Aggregate	-\$1,176,990		-\$1,334,983	
Laboratory				
Year One (N = 7,864)	-0.17	[-3.19, 2.85]	-1.90	[-3.89, 0.09]
Year Two (N = 7,694)	-2.63*	[-4.58, -0.69]	-1.48	[-3.33, 0.37]
Year Three (N = 6,723)	-4.24*	[-7.64, -0.83]	-1.03	[-3.64, 1.57]
Overall (N = 9,680)	-2.19*	[-3.75, -0.62]	-1.51	[-3.24, 0.23]
Overall Aggregate	-\$489,796*		-\$337,333	
Imaging				
Year One (N = 7,864)	0.15	[-3.62, 3.91]	0.43	[-1.80, 2.66]
Year Two (N = 7,694)	-1.68	[-4.94, 1.59]	-0.22	[-2.92, 2.47]
Year Three (N = 6,723)	-1.92	[-5.14, 1.29]	0.61	[-2.54, 3.76]
Overall (N = 9,680)	-1.08	[-4.29, 2.14]	0.26	[-2.07, 2.58]
Overall Aggregate	-\$241,114		\$57,419	
Other facility				
Year One (N = 7,864)	-0.94	[-2.26, 0.37]	-1.06*	[-2.00, -0.12]
Year Two (N = 7,694)	-0.02	[-0.81, 0.77]	-0.35	[-0.97, 0.27]
Year Three (N = 6,723)	0.10	[-1.04, 1.24]	0.21	[-1.01, 1.42]
Overall (N = 9,680)	-0.32	[-0.86, 0.21]	-0.45	[-1.06, 0.16]
Overall Aggregate	-\$72,655		-\$100,891	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the Overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall.
- A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.
- Outpatient expenditures include expenditures related to FQHCs. Other expenditures include expenditures for other Part B services, durable medical equipment, and hospice.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; FQHC = federally qualified health center; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence of lower expenditure growth in many of the expenditure categories for CCI beneficiaries, with impacts seen primarily when CCI beneficiaries were compared with beneficiaries assigned to PCMH practices. Specifically, *Table 11-26* shows the following:

- Among Medicare beneficiaries with multiple chronic conditions, although the growth in *overall aggregate total Medicare expenditures* was not statistically significant, the negative estimates in Years Two and Three suggest a potential trend toward lower growth among CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate acute-care expenditures* was \$8.9 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, although the growth in *overall aggregate post-acute-care expenditures* was not statistically significant, the negative estimates in Years Two and Three suggest a potential trend toward lower growth among CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate outpatient expenditures* was \$5.1 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate primary care physician expenditures* was \$1.1 million lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with multiple chronic conditions, the growth in *overall aggregate laboratory expenditures* was approximately \$489,000 lower for CCI beneficiaries compared with beneficiaries assigned to PCMH practices.

No statistically significant *overall* impacts were observed for ER visits not leading to hospitalization, specialty physician, home health, other non-facility, imaging, and other facility expenditures.

Table 11-27
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
utilization among Medicare beneficiaries with multiple chronic conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions				
Year One (N = 7,864)	9.79*	[1.76, 17.82]	18.31*	[8.54, 28.09]
Year Two (N = 7,694)	-20.79*	[-39.64, -1.94]	4.58	[-6.21, 15.38]
Year Three (N = 6,723)	-19.84*	[-38.04, -1.64]	15.01*	[3.05, 26.97]
Overall (N = 9,680)	-9.25	[-20.44, 1.94]	12.65*	[3.53, 21.76]
Overall Aggregate	-690		944*	
ER visits not leading to hospitalization				
Year One (N = 7,864)	3.12	[-14.10, 20.34]	1.92	[-12.01, 15.86]
Year Two (N = 7,694)	-12.54*	[-22.62, -2.45]	-7.45	[-20.41, 5.52]
Year Three (N = 6,723)	12.17	[-3.50, 27.84]	-2.62	[-19.51, 14.27]
Overall (N = 9,680)	0.36	[-12.14, 12.85]	-2.60	[-15.12, 9.92]
Overall Aggregate	27		-194	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among CCI Medicare beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with multiple chronic conditions, we found evidence that CCI changed the rate of all-cause admissions. Specifically, **Table 11-27** shows the following:

- The *overall aggregate* number of **all-cause admissions** increased by 944 among Medicare beneficiaries assigned to CCI compared with beneficiaries assigned to non-PCMH practices.
- Although the *overall aggregate* number was not statistically significant for **all-cause admissions** among Medicare beneficiaries, the negative estimates in Years Two and

Three suggested a potential trend toward a decrease in the number of all-cause admissions for beneficiaries assigned to CCI compared with PCMH practices.

No statistically significant *overall* impacts were observed for ER visits not leading to hospitalization.

Table 11-28
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for utilization among Medicaid beneficiaries with multiple chronic conditions: Twelve quarters of the MAPCP Demonstration

	Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause admissions					
Year One	4,365	1.32	[-2.92, 5.56]	0.80	[-0.30, 1.90]
Year Two	2,884	0.16	[-3.92, 4.25]	-0.82	[-2.05, 0.41]
Year Three	2,226	1.04	[-2.26, 4.35]	-0.89	[-2.38, 0.60]
Overall	4,949	0.89 267	[-2.89, 4.68]	-0.10 -31	[-1.20, 0.99]
ER visits not leading to hospitalization					
Year One	4,365	0.58	[-2.97, 4.12]	-1.92*	[-3.60, -0.23]
Year Two	2,884	-0.16	[-4.28, 3.95]	-2.31*	[-4.27, -0.36]
Year Three	2,226	-1.35	[-8.26, 5.55]	-3.63*	[-5.80, -1.45]
Overall	4,949	-0.11 -32	[-4.07, 3.85]	-2.44* -728*	[-4.04, -0.84]

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CCI Medicaid participants eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among MAPCP Demonstration Medicaid beneficiaries in a specific year or across the demonstration overall.
- A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries attributed to demonstration practices in each quarter, divided by the total number of beneficiaries attributed during the year(s).
- Children with multiple chronic conditions were not examined given the relatively low prevalence of multiple chronic conditions among children.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home; DNC = regression model did not converge.

* Statistically significant at the 10 percent level.

Among Medicaid beneficiaries with multiple chronic conditions, we found little evidence CCI changed the utilization, with the exception of ER visits not leading to hospitalization. Specifically, **Table 11-28** shows that the *overall aggregate* number of **ER visits not leading to hospitalization** decreased by 728 among Medicaid adult beneficiaries assigned to CCI compared with beneficiaries assigned to non-PCMH practices.

No statistically significant *overall* impacts were observed for all-cause admissions.

Beneficiaries with Behavioral Health Conditions

Medicare and Medicaid beneficiaries with behavioral health conditions are another population with greater health needs who could benefit more from care management, relative to the Medicare and Medicaid populations in general. These populations also have expenditures and utilization directly identifiable as due to behavioral health conditions. Research has shown that individuals with psychosocial and substance abuse disorders have substantial unmet needs for health care. Significant care management and coordination resources may be required to meet the needs of these patients.

In CCI, there were no targeted interventions implemented to improve utilization of health services and quality of care, specifically for individuals with mental illness and substance abuse disorders. This is reflected in the CAHPS PCMH survey results, which found that Pennsylvania CCI practices earned a weighted score of 44 out of 100 on a multiquestion composite scale that measures the degree to which practices ask about behavioral health issues. This composite reflects the following:

- 47 percent of respondents said their practice staff asked if they felt depressed;
- 48 percent reported that practice staff talked to them about things in their lives that worried or stressed them; and
- 33 percent responded that practice staff talked with them about personal problems, family problems, alcohol use, drug use, or a mental or emotional illness.

Individuals with behavioral health conditions were expected to benefit from the initiatives to improve access to, coordination of, and continuity of care with primary care and behavioral health care providers, however.

CCI was expected to increase care coordination between PCPs and behavioral health care providers for beneficiaries with mental illnesses and substance abuse disorders. Improved access and care coordination may have increased the use of outpatient behavioral health care services and primary care visits, and, in turn, more appropriate use of outpatient care may have led to decreased rates of hospitalizations and ER visits (both overall and for behavioral health conditions specifically). Given the potential impact on both nonbehavioral health and behavioral health care service use, we examined both types of service use and expenditures.

For this analysis, beneficiaries with behavioral health conditions were defined as those with at least one inpatient claim and/or two or more outpatient claims with a primary diagnosis of a mental health or substance abuse disorder during the 12-month period before participation in

the demonstration. Using this criterion, 12 percent of the Medicare study sample (demonstration and CG beneficiaries), 2 percent of the adult Medicaid study sample, and 0.3 percent of the child Medicaid study sample were identified as having a behavioral health condition.

- **Table 11-29** reports on changes in total Medicare expenditures, expenditures for acute hospitalizations, expenditures for ER visits, total Medicare expenditures for which the primary diagnosis on the claim was a mental health or substance abuse disorder (hereafter referred to as behavioral health disorders), and total Medicare expenditures for which a secondary diagnosis on the claim was a behavioral health disorder for beneficiaries with behavioral health conditions.
- **Table 11-30** reports on changes in five utilization measures among Medicare beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.
- **Table 11-31** reports on changes in five utilization measures among Medicaid beneficiaries with behavioral health conditions—all-cause inpatient admissions, all-cause ER visits, outpatient visits with a principal diagnosis of a behavioral health disorder, inpatient admissions with principal diagnosis of a behavioral health disorder, and ER visits with a principal diagnosis of a behavioral health disorder.

See **Section 11.6.2** for further discussion of the interpretation of these measures.

Table 11-29
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
Total Medicare				
Year One (N = 4,483)	14.87	[-66.31, 96.06]	-49.92	[-153.53, 53.70]
Year Two (N = 4,746)	-137.18*	[-230.03, -44.33]	-54.47	[-149.83, 40.89]
Year Three (N = 4,459)	-119.97*	[-199.04, -40.91]	106.04	[-7.16, 219.24]
Overall (N = 6,156)	-80.40*	[-138.50, -22.30]	-1.59	[-83.46, 80.29]
Overall Aggregate	-\$10,830,491*		-\$213,551	
Acute-care				
Year One (N = 4,483)	-17.47	[-78.64, 43.69]	-37.75	[-88.65, 13.16]
Year Two (N = 4,746)	-72.41*	[-126.99, -17.82]	-17.40	[-76.92, 42.12]
Year Three (N = 4,459)	-57.87*	[-102.88, -12.87]	57.02	[-14.25, 128.29]
Overall (N = 6,156)	-49.23*	[-92.64, -5.83]	-0.46	[-47.48, 46.57]
Overall Aggregate	-\$6,632,000*		-\$61,364	

(continued)

Table 11-29 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for PBPM
Medicare expenditures among beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Type of expenditure	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 4,483)	-3.23	[-9.43, 2.96]	1.58	[-3.01, 6.17]
Year Two (N = 4,746)	0.55	[-3.69, 4.79]	0.49	[-4.27, 5.25]
Year Three (N = 4,459)	-0.29	[-4.92, 4.34]	4.90	[-1.05, 10.85]
Overall (N = 6,156)	-0.99	[-4.62, 2.63]	2.27	[-2.19, 6.72]
Overall Aggregate	-\$133,918		\$305,327	
Total for services with a principal diagnosis of a behavioral health condition				
Year One (N = 4,483)	7.56	[-2.36, 17.49]	6.88	[-0.74, 14.50]
Year Two (N = 4,746)	7.97	[-0.43, 16.38]	-1.92	[-7.29, 3.44]
Year Three (N = 4,459)	1.22	[-9.92, 12.36]	-3.83	[-13.09, 5.44]
Overall (N = 6,156)	5.67	[-2.46, 13.81]	0.44	[-5.23, 6.10]
Overall Aggregate	\$764,427		\$58,729	
Total for services with a secondary diagnosis of a behavioral health condition				
Year One (N = 4,483)	-23.90	[-50.58, 2.78]	-33.67	[-69.57, 2.23]
Year Two (N = 4,746)	-33.60*	[-61.30, -5.90]	-7.97	[-46.59, 30.65]
Year Three (N = 4,459)	-34.31*	[-58.11, -10.52]	33.12	[-25.31, 91.55]
Overall (N = 6,156)	-30.56*	[-47.09, -14.02]	-3.49	[-39.25, 32.26]
Overall Aggregate	-\$4,116,240*		-\$470,425	

NOTES:

- All measures are PBPM expenditures except Overall Aggregate, which is the product of the overall PBPM estimate times the total number of unique MAPCP Demonstration beneficiary-months in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants with behavioral health conditions who were eligible for the measure.
- PBPM estimates in this table are interpreted as the difference in the rate of growth in expenditures compared with the CG in a specific year or across the demonstration overall. A *negative* value corresponds to *lower growth* in expenditures compared with the CG. A *positive* value corresponds to *greater growth* compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare payments relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PBPM = per beneficiary per month; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found evidence that CCI slowed the growth of total Medicare expenditures, acute-care expenditures, and total expenditures for services with a secondary diagnosis of a behavioral health condition. However, there were inconsistencies in the statistical significance of these findings, as these effects were only found with reference to the PCMH CG. Specifically, *Table 11-29* shows the following:

- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate total Medicare expenditures* was \$10.8 million lower for beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate acute-care expenditures* was \$6.6 million lower for beneficiaries assigned to CCI practices compared with beneficiaries assigned to PCMH practices.
- Among Medicare beneficiaries with behavioral health conditions, the growth in *overall aggregate expenditures for total services with a secondary diagnosis of a behavioral health condition* was \$4.1 million lower for beneficiaries assigned to CCI practice compared with beneficiaries assigned to PCMH practices.

No statistically significant overall results were observed among Medicare beneficiaries with behavioral health conditions assigned to CCI practices for the overall growth in expenditures for ER visits not leading to a hospitalization and expenditures for total services with a primary diagnosis of a behavioral health condition compared with beneficiaries assigned to either PCMH or non-PCMH practices.

Table 11-30
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions				
Year One (N = 4,483)	-2.95	[-14.50, 8.61]	7.76	[-0.30, 15.81]
Year Two (N = 4,746)	-20.74*	[-40.68, -0.80]	0.97	[-7.97, 9.90]
Year Three (N = 4,459)	-14.77	[-32.37, 2.83]	15.64*	[4.39, 26.89]
Overall (N = 6,156)	-12.83	[-27.98, 2.32]	7.95*	[0.51, 15.39]
Overall Aggregate	-576		357*	

(continued)

Table 11-30 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for
behavioral and nonbehavioral health care utilization among Medicare beneficiaries with
behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

Outcome	CCI PCMHs vs. CG PCMHs		CCI PCMHs vs. CG non-PCMHs	
	Average estimate	90% confidence interval	Average estimate	90% confidence interval
ER visits not leading to hospitalization				
Year One (N = 4,483)	6.17	[-17.17, 29.52]	15.68	[-5.81, 37.16]
Year Two (N = 4,746)	16.78	[-6.09, 39.65]	8.15	[-16.02, 32.33]
Year Three (N = 4,459)	20.80	[-2.55, 44.14]	16.26	[-12.03, 44.54]
Overall (N = 6,156)	14.49	[-6.29, 35.27]	13.28	[-8.90, 35.47]
Overall Aggregate	651		596	
Behavioral health inpatient admissions				
Year One (N = 4,483)	-0.02	[-2.19, 2.16]	0.88	[-0.28, 2.04]
Year Two (N = 4,746)	0.28	[-1.36, 1.91]	-0.07	[-1.04, 0.90]
Year Three (N = 4,459)	0.47	[-0.79, 1.72]	-0.13	[-1.61, 1.36]
Overall (N = 6,156)	0.24	[-1.16, 1.63]	0.23	[-0.59, 1.06]
Overall Aggregate	11		10	
Behavioral health ER visits				
Year One (N = 4,483)	1.30	[-2.82, 5.42]	3.08	[-1.77, 7.93]
Year Two (N = 4,746)	4.02	[-0.40, 8.44]	2.34	[-2.63, 7.32]
Year Three (N = 4,459)	-2.02	[-5.72, 1.67]	-2.06	[-5.89, 1.76]
Overall (N = 6,156)	1.17	[-1.77, 4.11]	1.18	[-2.26, 4.62]
Overall Aggregate	52		53	
Behavioral health outpatient visits				
Year One (N = 4,483)	73.50	[-103.73, 250.72]	17.48	[-4.56, 39.52]
Year Two (N = 4,746)	55.43	[-75.97, 186.84]	5.10	[-15.19, 25.38]
Year Three (N = 4,459)	14.70	[-23.61, 53.02]	-4.43	[-28.60, 19.74]
Overall (N = 6,156)	48.50	[-67.87, 164.86]	6.23	[-11.52, 23.97]
Overall Aggregate	2,178		280	

NOTES:

- All measures are rates per 1,000 beneficiary quarters except Overall Aggregate, which is the product of the overall quarterly rate estimate times the number of unique MAPCP Demonstration beneficiary-quarters in the demonstration to date.
- Numbers in parentheses represent sample sizes of unique CCI Medicare participants with behavioral health conditions who were eligible for the measure.
- Rate estimates in this table are interpreted as the difference in the rate of events among CCI Medicare beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the rate of events compared with the CG. A *positive* value corresponds to an *increase* in the rate of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).
- Overall Aggregate estimates are interpreted as the total increase or decrease in Medicare utilization relative to the CG.

CCI = Chronic Care Initiative; CG = comparison group; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicare beneficiaries with behavioral health conditions, we found no evidence that CCI reduced any of the examined utilization measures. Specifically, **Table 11-30** shows the following:

- Among Medicare beneficiaries with behavioral health conditions, **all-cause inpatient admissions** increased by an *overall aggregate* of 357 visits among beneficiaries assigned to CCI practices compared with beneficiaries assigned to non-PCMH practices.

No statistically significant overall results were observed among Medicare beneficiaries with behavioral health conditions assigned to CCI practices for the overall change in the rates of ER visits not leading to a hospitalization, behavioral health inpatient admissions, behavioral health ER visits, or behavioral health outpatient visits compared with beneficiaries assigned to either PCMH or non-PCMH practices.

Table 11-31
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
All-cause inpatient admissions Year One	84	0.03	[-0.53, 0.60]	0.52	[-0.32, 1.36]	251	7.41*	[0.10, 14.72]	-1.19	[-4.35, 1.98]
Year Two	81	-0.11	[-0.86, 0.63]	0.44	[-0.45, 1.34]	155	4.64	[-1.22, 10.49]	-1.01	[-5.18, 3.15]
Year Three	57	0.51	[-0.23, 1.24]	0.84	[-0.15, 1.83]	109	6.70	[-0.06, 13.46]	1.87	[-2.25, 6.00]
Overall Overall Aggregate	103	0.10 1	[-0.34, 0.54]	0.57 4	[-0.16, 1.31]	310	6.41 28	[-0.05, 12.87]	-0.49 -2	[-2.85, 1.86]
ER visits not leading to hospitalization Year One	84	3.69	[-0.31, 7.69]	0.61	[-3.03, 4.25]	251	-0.02	[-15.66, 15.61]	-7.05*	[-13.87, -0.23]
Year Two	81	-2.01	[-7.08, 3.06]	-2.38	[-6.24, 1.48]	155	-4.30	[-21.26, 12.66]	-10.17*	[-17.95, -2.39]
Year Three	57	3.39	[-2.94, 9.73]	-0.81	[-6.90, 5.28]	109	-24.33*	[-37.96, -10.70]	-11.47*	[-20.94, -2.00]
Overall Overall Aggregate	103	1.60 12	[-1.66, 4.85]	-0.80 -6	[-3.76, 2.15]	310	-6.42 -28	[-20.63, 7.80]	-8.93* -39*	[-14.37, -3.50]
Behavioral health inpatient visits Year One	84	DNC	DNC	DNC	DNC	251	DNC	DNC	DNC	DNC
Year Two	81	DNC	DNC	DNC	DNC	155	DNC	DNC	DNC	DNC
Year Three	57	DNC	DNC	DNC	DNC	109	DNC	DNC	DNC	DNC
Overall Overall Aggregate	103	DNC DNC	DNC	DNC DNC	DNC	310	DNC DNC	DNC	DNC DNC	DNC
Behavioral health ER visits Year One	84	DNC	DNC	0.02	[-0.48, 0.53]	251	6.90	[-1.38, 15.19]	-2.51	[-9.39, 4.37]
Year Two	81	DNC	DNC	0.00	[-0.29, 0.29]	155	5.67*	[0.04, 11.29]	-3.41	[-9.24, 2.43]
Year Three	57	DNC	DNC	0.55	[-0.77, 1.87]	109	1.18	[-5.94, 8.30]	-6.84	[-14.80, 1.12]
Overall Overall Aggregate	103	DNC DNC	DNC	0.15 1	[-0.28, 0.57]	310	5.33 23	[-0.90, 11.56]	-3.69 -16	[-9.51, 2.12]

(continued)

Table 11-31 (continued)
Pennsylvania: Comparison of average MAPCP Demonstration effect estimates for behavioral and nonbehavioral health care utilization among Medicaid beneficiaries with behavioral health conditions:
Twelve quarters of the MAPCP Demonstration

	Children					Adults				
	N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs		N	CCI vs. CG PCMHs		CCI vs. CG non-PCMHs	
		Average estimate	90% confidence interval	Average estimate	90% confidence interval		Average estimate	90% confidence interval	Average estimate	90% confidence interval
Behavioral health outpatient visits										
Year One	84	1.55	[-5.90, 9.01]	-2.88	[-7.18, 1.42]	251	-5.34	[-17.67, 7.00]	3.68	[-0.36, 7.72]
Year Two	81	6.24*	[0.00, 12.47]	0.43	[-3.39, 4.25]	155	-7.82	[-19.32, 3.67]	-0.96	[-4.83, 2.90]
Year Three	57	4.87	[-2.58, 12.32]	2.39	[-2.15, 6.93]	109	-10.29	[-27.94, 7.36]	1.82	[-2.20, 5.84]
Overall	103	4.04	[-1.54, 9.62]	-0.39	[-2.75, 1.97]	310	-7.14	[-18.44, 4.16]	1.86	[-1.20, 4.92]
		31		-3			-31		8	

NOTES:

- All measures are quarterly, dichotomous (yes/no) outcomes.
- N represents sample sizes of unique CCI Medicaid participants with behavioral health conditions who were eligible for the measure.
- Estimates in this table are interpreted as the difference in the likelihood of events occurring among MAPCP Demonstration Medicaid beneficiaries with behavioral health conditions in a specific year or across the demonstration overall. A *negative* value corresponds to a *decrease* in the likelihood of events compared with the CG. A *positive* value corresponds to an *increase* in the likelihood of events compared with the CG.
- Yearly and Overall change estimates are calculated as weighted averages of individual quarterly estimates, with weights equal to the number of beneficiaries with behavioral health conditions attributed to demonstration practices in each quarter, divided by the total number of beneficiaries with behavioral health conditions attributed during the year(s).

CCI = Chronic Care Initiative; CG = comparison group; DNC = regression model did not converge; ER = emergency room; MAPCP = Multi-Payer Advanced Primary Care Practice; PCMH = patient-centered medical home.

* Statistically significant at the 10 percent level.

Among Medicaid children with behavioral health conditions, we found no evidence that CCI had an impact on the selected health care utilization measures. Among Medicaid adults with behavioral health conditions, we found no evidence that CCI had an impact on the selected health care utilization measures, with the exception of a reduction in ER visits not leading to a hospitalization. Specifically, **Table 11-31** shows that among Medicaid adults with behavioral health conditions, the overall aggregate number of beneficiaries with an **ER visit not leading to hospitalization** decreased by 39 among beneficiaries assigned to CCI practices compared with beneficiaries assigned to non-PCMH practices.

Among Medicaid children with behavioral health conditions, no statistically significant overall impacts were observed for all-cause inpatient admissions, ER visits not leading to a hospitalization, behavioral health inpatient admissions, behavioral health ER visits, or behavioral health outpatient visits. Among Medicaid adults with behavioral health conditions, no statistically significant overall impacts were observed for all-cause inpatient admissions, behavioral health inpatient admissions, behavioral health ER visits, or behavioral health outpatient visits.

11.7.3 Discussion of Special Populations

In Phase II of CCI, Pennsylvania and the participating practices focused on patients with multiple chronic conditions and high-risk patients. Particularly in the latter years of the demonstration, practices tried to target high-need patients more effectively for care management services using their health IT systems and payer reports and to manage their patients' transitions from the hospital to the community more proactively. There was evidence that CCI reduced expenditures for Medicare beneficiaries with chronic conditions, likely due to lower growth in acute-care, outpatient, primary care physician, and laboratory expenditures (data on Medicaid expenditures were not available).

Performance on quality measures for Medicare and adult Medicaid beneficiaries with chronic conditions generally was statistically non-significant, with two exceptions: Findings for medical attention for nephropathy and receipt of all four diabetes tests indicated a decreased likelihood of receiving the recommended care relative to one or both CGs. In addition, the likelihood of adult Medicaid beneficiaries with chronic conditions receiving 12 weeks of antidepressant medication management and 6 months of antidepressant medication management decreased relative to beneficiaries in the PCMH CG. The results of these process and quality indicators may reflect CCI's decision in Phase II to de-emphasize practice performance on these types of measures and focus more on practice accountability through new mechanisms, such as care management audits, a practice transformation self-assessment tool, and monthly practice narratives.

The utilization results among patients with chronic conditions, on the other hand, may reflect the Phase II requirement that practices use a care manager. Care manager responsibilities in Phase II included but were not limited to engaging in case review and planning, providing intensive medical and medication management services, identifying high-risk patients through risk stratification, developing and implementing care plans, and managing and tracking tests, referrals, and outcomes. These activities may have contributed to the movement of a range of Medicare and Medicaid utilization measures in the expected direction, including the rate of

avoidable catastrophic events among Medicare beneficiaries with multiple chronic conditions (relative to similar beneficiaries in the PCMH CG), the percentage of total visits that were primary care visits among Medicare beneficiaries (relative to PCMH and non-PCMH CGs) (although the increase in primary care visits is driven by changes in the first year of demonstration), the rate of follow-up visits within 14 days after hospital discharge among Medicare beneficiaries (relative to the PCMH CG), and the rate of ER visits not leading to hospitalization among Medicaid beneficiaries (relative to the non-PCMH CG). An exception to the generally positive results for Medicare beneficiaries was the rate of all-cause admissions among Medicare beneficiaries, which increased.

Although CCI did not include any special interventions for patients with behavioral health needs, there was some evidence that expenditures for Medicare beneficiaries and utilization for Medicaid beneficiaries with behavioral health needs changed in the expected direction. The growth in total, acute-care, and secondary behavioral health diagnosis expenditures was lower for Medicare beneficiaries with behavioral health needs in CCI practices, relative to those in PCMH CG practices. Among adult Medicaid beneficiaries with behavioral health conditions, CCI practices decreased the likelihood of ER visits not leading to a hospitalization compared with non-PCMH practices. These positive results could be attributed to the increased focus by some CCI practices on addressing patients' behavioral health needs as the demonstration progressed. These practices hired social workers to conduct behavioral health screenings and to forge links with behavioral health care providers and social services in their communities.

Not all results in this area were positive, however. CCI had low CAHPS PCMH survey scores related to the degree to which practices asked about behavioral health issues, perhaps reflecting the fact that CCI practices began focusing on behavioral health needs late in the demonstration, or that only a small portion of practices chose to work on these issues. In addition, CCI's decision to exclude behavioral health care providers and Medicaid behavioral health managed care plans from the initiative may have created challenges for primary care practices' efforts to coordinate behavioral health care for their patients and may have contributed to utilization results that moved in the unexpected direction. Specifically, CCI increased the rate of all-cause admissions among Medicare beneficiaries with behavioral health needs relative to those in non-PCMH practices.

Although CCI did not include any special interventions for Medicare and Medicaid beneficiaries living in rural areas, total Medicare and acute-care expenditures, ER visits not leading to hospitalization, and primary care physician expenditures changed in the expected direction for these beneficiaries. It is possible that the reductions in expenditures for Medicare beneficiaries living in rural areas were driven by the Northeast region, which is rural and dominated by Geisinger. Similar to Medicare beneficiaries living in rural areas, Medicare beneficiaries in the Northeast region had lower growth in total Medicare and acute-care expenditures, ER visits not leading to a hospitalization, and primary care expenditures.

11.8 Discussion of Pennsylvania's MAPCP Demonstration

From Phase I to Phase II, CCI made four significant changes in its approach to implementing the PCMH model. These changes had mixed effects on practice capacity to

transform into more sophisticated PCMHs during the second phase. First, and generally recognized by participants to be quite a positive change, Phase II of CCI de-emphasized the importance of achieving NCQA recognition, with its focus on broad infrastructure development and written policies and procedures, and shifted the emphasis to mechanisms (i.e., care management audits, a practice transformation self-assessment tool, and monthly practice narratives) that would hold practices accountable for real change in care delivery processes and improved performance as the basis for rewards.

Second, practices participating in Phase II were required to have an on-site care manager. Participants generally viewed the integration of care managers into practices quite positively. However, some practices struggled to support the care manager position financially in the demonstration's latter years because of the automatic PMPM payment cuts in the last 2 years of Phase II and limited-to-no shared savings payments in the first 2 years of Phase II.

Third, CCI instituted a more voluntary approach to payer participation in Phase II, removing participation requirements from MCO contracts and no longer compelling commercial payer participation. This change opened the door for payers to decline to join Phase II or withdraw from the initiative before its end. Payer attrition was cited consistently as a major concern during the latter years of Phase II, shaking practice confidence in the initiative and reducing the total dollars available to practices to fund their transformation activities.

Fourth, CCI implemented a shared savings model in Phase II. As the demonstration progressed, state officials and practices expressed frustration about the lack of shared savings payments during the first 2 years of Phase II. Year Three results, which found that practices in both regions would receive Medicare shared savings payments for the first time, were announced well after the demonstration ended.

Sufficient financial support was a major challenge for CCI, particularly in the demonstration's latter years, and one that state officials were never able to address fully. Many practices believed that CCI payment rates were inadequate to fund the required practice transformation investments, reporting, and ongoing care management activities, particularly in light of the lack of shared savings payments and the decreases in PMPM payments in Year Two and Year Three. During the third year of the demonstration, at least three practices withdrew from CCI because of insufficient financial support to make and sustain the required practice changes, including funding their care managers. In the same year, a large practice group in the Northeast left CCI because of its difficulty in covering administrative costs following the loss of Medicaid and the Blue Cross of Northeast Pennsylvania plan as payers in the initiative, lack of Medicare shared savings payments, and a decreased PMPM rate.

Despite these financial challenges, practices made progress in transforming into more sophisticated PCMHs across a number of areas during the demonstration period. Care management was the most significant component of practice change in Phase II of CCI. Care manager responsibilities included but were not limited to engaging in case review and planning, providing intensive medical and medication management services, identifying high-risk patients through risk stratification, developing and implementing care plans, and managing and tracking tests, referrals, and outcomes. Care transitions were a major focus of care managers, and practices worked hard to target their care management services to their high-risk patients. CCI

practices that reported engaging in care coordination and care management activities at a high level. As a result of these efforts, CCI practices experienced the expected shift in primary care visits as a percentage of total visits and improved care coordination for Medicare beneficiaries, compared with non-PCMH comparison practices.

Practices also used patient registries as a tool to conduct population-based tracking and analysis (e.g., tracking hospital admissions and ER visits) and submitted and used data related to the state's 24 performance measures. These efforts likely contributed to a decrease in the rate of avoidable catastrophic events and a decrease in the rates of overall and chronic PQI admissions among CCI Medicare beneficiaries. Quantitative results for the Medicare and Medicaid process-of-care indicators, however, either were not statistically significant or moved in the unexpected direction, perhaps due to the de-emphasis of practice performance on process and quality measures in Phase II and the shift toward greater practice accountability.

In addition, CCI practices worked hard to improve their patients' experience of care during the demonstration period, with mixed results. Patient portals, care managers, and health educators generally were viewed as the most visible PCMH features to patients during the demonstration period. Pennsylvania practices reported engaging in alternative types of contact with patients (e.g., patient portals, e-mail, Internet) and in patient self-management support for chronic conditions at high rates. Beneficiaries, on the other hand, reported that practices were not highly engaged in enabling patient self-management: One-third of survey respondents were not asked about their health goals and less than half were asked about barriers to self-management. Likewise, focus group participants reported minimal discussion about how doctors helped patients take care of themselves. These seemingly contradictory results may be due to practices being focused on providing care management services to patients with chronic conditions but not to their entire patient panel.

In terms of effectiveness, state officials expected that the development of self-management support plans, enhanced primary care access, better management of care transitions, more aggressive patient tracking and outreach, and care management for high-risk patients would contribute to reductions in inpatient and ER utilization and costs. Practices reportedly were engaged in many of these activities during the demonstration, which may have contributed to findings showing that CCI practices were associated with a slowdown in the growth of overall Medicare expenditures and the presence of gross Medicare savings and a positive RoI for Medicare relative to both CGs. These positive results were likely driven by Medicare expenditure and utilization reductions in inpatient acute-care and ER visits. Although Medicaid expenditure data were not available for this evaluation, selected utilization indicators showed evidence of a slowdown in utilization among Medicaid beneficiaries in similar areas.

Despite these positive findings, the degree of cost and utilization reductions experienced over the course of the demonstration fell short of state officials' and practices' expectations. Practices received limited-to-no shared savings payments in the demonstration's first 2 years. Medicare distributed shared savings payments to practices in both regions for the first time in the demonstration's third and final year. These findings may be due to the demonstration's short timeframe (only 3 years), and CCI practices being held responsible for costs that were outside of their control.

CCI did not include any specific interventions for special populations, but CCI practices did pay particular attention to patients with chronic conditions and high-risk patients. Practices tried to target high-need patients more proactively for care management services and care transition services using their health IT systems and reports provided by payers. There was evidence that CCI reduced expenditures for Medicare beneficiaries with chronic conditions (data on Medicaid expenditures were not available), but practice performance on quality measures for Medicare and adult Medicaid beneficiaries with chronic conditions generally were statistically non-significant or moved in the unexpected direction. Similar to the overall CCI patient population, practice performance on process and quality indicators among Medicare and adult Medicaid patients with chronic conditions may reflect CCI's shift in focus from these types of measures in Phase I to practice accountability for true transformation into a PCMH.

Some practices began to focus on their patients' behavioral health needs in the demonstration's later years. Our quantitative analysis and patient survey showed mixed results in this area. There was some evidence that expenditures for Medicare beneficiaries (e.g., total, acute-care, and secondary behavioral health diagnosis expenditures) and utilization for Medicaid beneficiaries with behavioral health needs (e.g., decreased likelihood of ER visits not leading to a hospitalization) changed in the expected direction, but other areas were not as positive. CCI had low CAHPS PCMH survey scores related to the degree to which practices ask about behavioral health issues, perhaps reflecting the fact that CCI practices began focusing on behavioral health needs late in the demonstration or that only a small portion of practices chose to work on these issues. In addition, CCI's decision to exclude behavioral health care providers and Medicaid behavioral health managed care plans from the initiative may have created challenges for primary care practices' efforts to coordinate behavioral health care for their patients and may have contributed to utilization results that moved in the unexpected direction.

Reflecting on the 3-year demonstration period, several lessons emerged. First, policymakers and providers felt that the demonstration did not present a strong enough business case to engage and sustain practice and payer commitment over time. Many practices did not establish their business model before engaging in the required activities (e.g., hiring care managers, managing data and analytics). Continued buy-in, particularly from smaller practices, also would have been more likely if the shared savings calculation methodology and process had been more understandable and transparent to practices. Second, strong leadership by the state and commercial plans was critical, because Medicare joined an ongoing initiative led by state officials, payers, and practices. Leadership turnover at the state level resulted in different approaches on key issues, such as payer participation, which slowed and eventually undermined CCI through payer and practice withdrawals from the demonstration.

Despite these setbacks, many CCI participants noted that the demonstration and shared savings payment methodology defined common goals with which everyone agreed (i.e., overall quality improvement and cost reduction), provided an approach for achieving those aims in terms of payment and delivery reform, and fostered collaborative rather than adversarial relationships. Having public and private payers—Medicare, Medicaid, and commercial plans—collaborating and agreeing on a payment methodology and data issues, as well as working more collaboratively with practices, was a major, positive step. Although CCI concluded at the end of 2014, many were hopeful that this collaborative spirit would continue in future interactions among payers, providers, and state officials.

CHAPTER 12

CONCLUSIONS

The MAPCP Demonstration was the first patient-centered medical home (PCMH) model conducted by CMS. Under this demonstration, CMS joined eight state-sponsored, multi-payer initiatives to promote the spread of PCMHs. As a result of the demonstration, nearly \$125 million was infused into primary care to support the provision of patient-centered, comprehensive, coordinated primary care and enhanced access. More than 3 million individuals, including more than 700,000 Medicare fee-for-service beneficiaries, benefitted from the demonstration.

Throughout the MAPCP Demonstration, most of the eight participating initiatives were favorably regarded by state officials, payers, and providers in their states. Support from these stakeholders was often necessary for sustaining the initiatives. This support was sometimes obtained by engaging these stakeholders in the design and implementation decisions of the initiatives. Buy-in of a broad range of payers was particularly important for practices' ability to transform into a PCMH and to maintain their transformation. Having more participating payers increased the percentage of a practice's patient list for which the practice received practice transformation fees and decreased the practices' burden of differentiating the services offered to patients covered by participating and nonparticipating payers. Even though some practices found the fees insufficient for covering all expenses related to being a PCMH, they were grateful for these payments that gave them financial resources to support transformation activities such as offering care management services; providing greater access via weekend and evening hours, 24-hour access, and patient portals; and adopting and using electronic health records (EHRs). Although Rhode Island, Vermont, and Minnesota had mandates that required participation of some subset of payers, the other states did not. Other states were able to keep payers engaged by involving them in decision making for the initiatives. In states that lost the support of payers and suffered payer attrition, some practices withdrew from the PCMH initiatives because of the reductions in payer financial support.

During the MAPCP Demonstration, participating practices experienced significant transformation. During the first year of the demonstration, practices made operational changes (e.g., restructuring of staff roles and improving patient flow) and adopted health information technology (health IT) to facilitate practice transformation (e.g., EHRs, registries). These changes included the training and integration of care managers either as staff at the practice or through shared support teams. During Year Two, practices continued the transformation efforts started in Year One. For example, practices reported learning how to effectively use care managers and hiring care managers with different types of expertise such as dietitians, social workers, and wellness nurses. In addition, Year Two also witnessed the start of significant adoption of patient portals in an effort to increase communication between patients and their primary care providers. Patient portals generally allowed patients to request medication refills, view medication lists, review laboratory test results, request an appointment, view visit summaries, and communicate with providers using secure messaging. Although much of Year Three's practice activities were a continuation of activities from Year One and Year Two, there was a greater focus on high-risk and high-cost patients and an increased integration of behavioral health care among many of the initiatives.

Among the many transformation activities in which practices engaged, care managers were described as the most central, transformative activity of the MAPCP Demonstration. They were the aspect of the demonstration with which patients interacted most. Care managers followed up with patients after hospital discharges or emergency room (ER) visits, taught patients self-management, performed medication reconciliation, connected patients to community-based services, and developed and implemented individualized care plans. However, because care managers were seamlessly integrated into the practices in some state PCMH initiatives, patients of these initiatives often did not recognize care managers as a separate entity from the usual practice staff.

Increasing access to care was also a common focus of the transformation activities of practices across MAPCP Demonstration states. Efforts to improve access to care included open-access scheduling, expanded hours, better after-hours coverage, improved telephone access, and Web-based patient portals.

Despite the many transformation efforts of participating practices, the initiatives had limited impacts on claims-based measures of quality of care, coordination of care, access to care, utilization of services, and expenditures among Medicare and Medicaid beneficiaries. Although there were some high points, there were no consistent impacts within or across states. Interviews with stakeholders during the demonstration provided several plausible explanations for these limited impacts. Each of the MAPCP Demonstration states identified the time period for the MAPCP Demonstration as too short to experience impacts. Integration of care managers and development of reliable methods to identify high-risk patients were time-consuming transformations. Many practices felt that it was not until Year Three that they were finally able to operate fully as PCMHs and that impacts would begin sometime after Year Three. Thus, they did not expect this evaluation, which covers the demonstrations through December 2014, would find any significant impacts on outcomes. The five states in which the demonstration was extended through December 2016 felt that the additional time would allow them to demonstrate significant changes.

Other contributors to the lack of consistent impacts included too few care managers, the eventual focus on high-risk and high-cost patients, unreliable health IT infrastructure and data/reports, and PCMHs' limited influence beyond the primary care setting. In many state initiatives, there were not nearly enough care managers for all attributed patients to receive care management services. As a result of limited care management resources and in an attempt to be more efficient, states focused their care management services on only a small percentage of the patient populations—usually high-risk and high-cost patients. This number was likely too few to drive significant changes in broader population outcomes.

To identify high-risk and high-cost patients on which they could focus care management services, practices often relied on data from health IT infrastructure or reports from payers. Practices in several states experienced problems with health IT infrastructure that prevented them from accessing data that would identify high-risk patients and coordinate care across providers. These issues included incompatibility with EHRs and the inability to operationalize systems. Even practices that received data or lists from payers had problems with using these resources to identify high-risk and high-cost patients. Problems included poor algorithms and data lags that created discrepancies between risk scores and current health status of patients. These data issues

led to a misallocation of care manager time in assessing patients who were misidentified as high risk or high cost, which likely had a role in there being few impacts on the outcomes of special populations.

In general, hospitals, specialists, and other health care providers beyond primary care practices were not part of the state initiatives and often were not engaged in the initiatives, unless the practices were part of a large health care system. Practices reported difficulties in getting hospitals and specialists to enter data into EHRs that fed into state health information exchanges and getting hospitals to alert them of when patients were admitted, discharged, or used ER services. This affected the practices' ability to effectively coordinate care.

In addition to engaging all relevant stakeholders, allowing for a longer test period, and addressing the above-identified issues with the number of available care managers, health IT infrastructure and data, and coordination with other providers, incorporating features were common among the three state initiatives that experienced significant savings. These features include requirements that practices be certified PCMHs at demonstration entry; requirements that practices recertify as a PCMH every 3 years, instead of every 12 months or 18 months; restrictions that allow practices to join the demonstration only at the start of the demonstration period; having a large number of practices in the demonstration; demonstration payment amounts that are what practices expected to receive; and an above-average level of adoption of the PCMH model. These are all very doable features and could increase the likelihood of a success in future implementations of or revisions to PCMH models like the MAPCP Demonstration.

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